

## **Text C Health effects from fertilizer**

Synthetic fertilizer has allowed a vast increase in food production. The Swedish Academy of Sciences awarded the Nobel Prize for Chemistry to Fritz Haber in 1919. They argued that Haber had created “an exceedingly important means of improving the standards of agriculture and the well-being of mankind.”

Today, it is estimated that 40 percent of all crop nitrogen comes from synthetic fertilizer, and about one-third of human protein consumption depends on synthetic fertilizer. Moreover, fertilizer allows us to produce more food on less farmland. This is one of the reasons why the global population could double from 1960 to 2000 and get better fed, although farmland area only increased 12 percent. The extraordinary increase in fertilizer availability made possible to avoid a dramatic increase in human pressure on other natural habitats. If fertilizer use had remained at 1960 level, we would need at least 50 % more farmland than the present day use – the equivalent of covering almost a quarter of the global forests.

Fertilizer makes up the main part (about 75%) of the extra nitrogen release.

The two global nitrogen problems are nitrous oxide contributing to global warming and ozone depletion. However, nitrous oxide’s contribution to global warming is only about one-tenth that of CO<sub>2</sub>. The latest nitrogen review concluded that “both fossil fuel burning and the direct impact of agricultural fertilization have been considered and rejected as the major source “of nitrous oxide.

In the 1980s nitrates in the groundwater came very much into focus. The Danish environment minister, Christian Christensen, stated flatly that nitrate pollution had serious consequences because:

“a clear relationship has been established between stomach cancer and high levels of nitrates in drinking water. And many infants are in direct danger because they get much of their water from their food. This can result in slow asphyxiation because excessive nitrate inhibits the blood’s absorption of oxygen. Internal organs can also break down so that the children become ill or have difficulty concentrating. For this reason I do not dare to drink nitrate-polluted water and I will not allow my child to do so either.”

Most of the nitrates we consume come from vegetables, especially beets, celery, lettuce and spinach, which can give us between 75 and 100 mg of nitrates a day – vegetarians get more than 250 mg.

The Hypoxia Assessment identifies two main “options to reduce the nitrogen load.” First, fertilizer usage on agricultural lands could be reduced, both by a general reduction and through better fertilizer application and management, alternative crops and wider spacing of drains. Second, the creation of riparian zones and wetlands would diminish the nitrogen load. When water and nitrogen

compounds flow through these areas, several microbiological processes turn significant amounts of the compounds back into N<sub>2</sub>, effectively making it unavailable for further plant use.

### VOCABULARY:

Nitrous	Азотистый	To dare	Решаться
Nitrogen	Азот	Celery	Сельдерей
Flatly	Категорически	Lettuce	Салат
Consequence	Последствие	Spinach	Шпинат
Infant	Ребенок	To space	Оставлять промежутки
Asphyxiation	Удушение	Riparian	Прибрежный
Excessive	Чрезмерный	Wetland	Заболоченная территория
To Inhibit	Запрещать	Absorption	Поглощение

### EXERCISE 1

Переведите следующие выражения: to come into focus, to have difficulty concentrating, wide spacing the drains, to make it unavailable.

### EXERCISE 2

Ответьте на вопросы: 1. Who did the Swedish Academy of Science award to the Nobel Prize for Chemistry in 1914? 2. What were the arguments of Swedish Academy of Science? 3. What is the main source of nitrogen? 4. Is fertilizer useful? 5. What are the two global nitrogen problems? 6. When did nitrates come into focus? 7. What are the consequences of nitrate pollution for our health? 8. Where do we consume nitrates from? 9. Identify, please, the main options to reduce the nitrogen load?

### EXERCISE 3

Найдите эквиваленты: обширный прирост в производстве продуктов питания; чрезвычайно важные средства; потребление белка человеком; вырасти в два раза; начать лучше питаться; территория сельскохозяйственных земель; лучшее использование удобрений; лучшее руководство процессом внесения удобрений; сделать недоступным;

альтернативные зерновые культуры; превратить обратно в; прямое воздействие; стать центром внимания; подвергаться прямой опасности; трудно сосредоточиться.

#### EXECISE 4

Составьте фразы, соответствующие содержанию текста:

1. Synthetic fertilizer has allowed	a vast increase	in food production.
	a decrease	
	a small increase	

2. The Swedish Academy of Sciences awarded the Nobel Prize for Chemistry to Fritz Haber	in 1914.
	in 1991.
	in 1999.

3. Today, it is estimated that 40 percent of all crop nitrogen comes from	synthetic fertilizer.
	fossil fuel burning.
	the direct impact of agriculture.

4. Most of the nitrates we consume come from	vegetables.
	fruit.
	beverages.

5. Nitrates in the groundwater came very much into focus.	in the 1980s.
	in the 1990s.
	in the 2000s.

6. Fertilizer allows us to produce more food on	less farmland.
	more farmland.
	the same farmland.

7. The Danish environment minister, Christian Christensen, stated flatly that nitrate pollution had	serious consequences.
	insignificant consequences.
	unimportant consequences.

#### EXECISE 5

Согласны ли вы с кратким выводом по содержанию предыдущего текста:  
Of course, to a certain extent we can use our fertilizer better and in the developed part of the world pay our way to avoid eutrophication, but we also need to ask whether this is the best allocation of our scarce resources.