

21世纪高等院校教材

适用于农业 生物 环境等专业

**English For Scientific Purpose**

# 生物学专业英语

内蒙古自治区生命科学教材编委会 组编

李青丰 赵萌莉 李春兰 编著

内蒙古大学出版社

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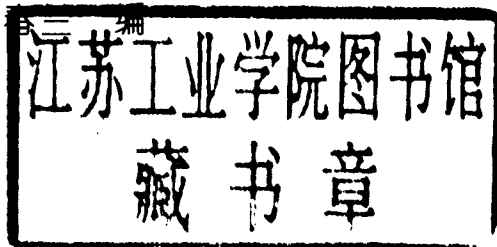
# 生物专业英语

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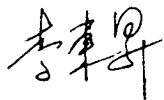
# 序

内蒙古自治区的高等教育事业起步于 20 世纪 50 年代初。经过近 50 年的发展,我区的高等教育无论从规模上,还是质量上都取得了长足的发展。特别是近些年来,全区高等院校的招生数量成倍增长,部分院校的合并使得一些高校的办学规模迅速壮大,形成了几所万人大学。与此同时,各高校对各自的专业及课程设置都做了较大的调整,以适应当今日益发展变化的高等教育事业。面向 21 世纪,在科学技术日新月异,社会对人才的知识结构、层次要求越来越高的新形势下,我们的高等教育的教学水平,特别是教材建设都应有一个更新更高的要求。

回顾 50 年来的发展,虽然我区高等教育的教学科研水平有了较大的提高,但与之相应的教材建设的现状还不尽如人意,绝大多数主干课程的教材还沿用一些传统教材,有些甚至是 20 世纪七八十年代的版本。有些院校的教材选用则有一定的随机性,在几种版本的教材之中换来换去。其间,虽然部分院校也组织力量编写了一些基础课及专业课教材,但大都是各成体系,缺乏院校间的协作与交流,形不成规模,质量亦无法保证,常常滞后于学科的发展与课程的变化。这都与我区高等教育的发展极不协调。诚然,区外部分地区高校的教学科研水平比我区要高,一些教材的质量好,我们可以直接利用,但这并不能成为我们不搞教材建设的理由。好的教材还需要相应的教育资源条件与之相对应才能取得良好的教学效果,从而达到促进教学质量提高之目的。应当承认,由于经济发展的相对落后,我区高校所招学生的基础和学校的教学条件比起全国重点名牌大学相对要差一些。因而,我们高校的教材也应从实际出发,结合自己学校和学生特点,逐步探索、建立一套适合自治区教育资源条件的教材体系,促进自治区高校教学科研水平的提高,多出人才,出好人才。

值得欣喜的是,随着自治区教育科学水平的提高,我区高校教育领域的一些有识之士逐渐认识到,面向 21 世纪,未来高校之间的竞争就是学校的产品——学生质量的竞争。要想培养出高水平、高素质的学生,使我区的高校在这种竞争中立于不败之地,除各高校应努力提高自身的教学组织管理水平、提高教师的素质外,还应积极主动地加强与区内外高校的协作、交流,取长补短,走联合发展的道路,使我区高等教育的整体水平能够在较短的时间内得到提高。为此,在有利于规范高校教材体系,促进高校教育质量的提高,加强各高校教学科研人员之间的协作与交流的原则下,由自治区教育厅牵头,内蒙古大学出版社组办、资助,联合全区高等院校的有关专家、学者共同组建成立一些相关专业的教材编委会,以求编写适合我区高等教育特点的教材,逐步建立、完善自治区高等教育的教学、教材体系,并开展一些与教学相关的科研工作。我们希望,通过教材编委会这种工作模式,建设一批高质量的教材,带出一支高水平的师资队伍,培养出大批高素质的人才。

我坚信,在自治区教育厅的指导下,在编委会各位专家、学者的辛勤工作下,在各院校的相互理解、相互协作、相互支持下,我们一定能够克服发展过程中的困难,逐步推出一批高质量、高水平的教材,为推进内蒙古自治区高等教育事业做出重要的贡献。



2002 年 3 月 19 日

# 前 言

“生物学专业英语”是一门为提高大学高年级学生国际科技交流能力而设计的课程。本书可供农业、生物、环境等学科各专业三、四年级的学生作为教学用书使用。也可供其他学科的师生以及广大科技工作者参考阅读。

本书分两大部分。第一部分共 4 课,包括植物、土壤、环境等方面的 4 篇课文以及阅读材料。每课中有一定量的专业词汇和少量的语法练习。该部分的重点是让读者在熟悉简单专业文章的同时,扩大专业词汇量和了解专业英语的一些主要表达方式。在写作方面,简单介绍了常见应用文写作的文体格式,重点介绍申请信以及个人简历的写作技巧。第二部分共 8 课,主要涉及了专业书籍、杂志文章的阅读及简单写作。该部分重点放在对专业书籍及专业杂志文章的阅读方面。详细讲述了专业书籍及杂志文章的构成特点、层次结构、语言表达方式等方面的内容。在写作方面,重点介绍了科技文章的格式要求、组织结构、写作要点及技巧。

在两部分后,各有一个综合练习,以便读者进行阶段性总结和进行自我测评。本书中没有列出太多的专业词汇。教师使用者可根据学生的英语程度以及对不同专业的不同要求,自行增加或调整词汇部分的练习。

正文后附有本书的教学大纲和部分练习答案,供教师参考使用。

由于编者水平有限,书中一定还存在着不少错误和不足。望读者多提宝贵意见,以便今后修正。

编 者

2002 年 6 月

# Preface

English for Scientific Purpose is a course designed for senior university students to strengthen their competences in scientific communications. Although this book is written for students in the disciplines of agricultural, biological and environmental sciences, it could also be used as for students and researchers in other relevant disciplines.

Texts in the book are arranged into two parts. The first part includes 4 lessons, mainly dealing with simple reading materials in the areas of plant, soil and environmental sciences. Each lesson contains a new word list and some grammar exercises. The main purpose of this part is to introduce simple scientific writings and to build a basic vocabulary for scientific reading. Instructions for simple writings such as application letter and resume are also introduced. The second part includes 8 lessons, mainly dealing with professional books and academic papers. Special emphasis in this part is given in sectioning and reading of academic papers. Detailed descriptions of the form, structure, organization and presentation mode for academic papers are presented. Writing instructions and skills for writing academic paper and abstracts are introduced in this part. At the end of each part, a comprehensive exercise is provided for the readers to make self – assessment. There are not too many special words or terms listed in the book, a free space is left for teachers to make their own vocabularies of different disciplines.

The Instructor's Manual and Keys to the exercise were designed as annexes in the end of the book to assist the instructors as they plan and prepare for classes.

Limited by the author's narrow knowledge background and language competences, there may be some mistakes and shortcomings in the book. The authors will be grateful to readers who will make comments and constructive suggestions to this little book.

**The authors**  
**June, 2002**

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# Lesson 1

## The Parts of a Plant and Their Functions



A plant is a living organism. It is made up of different parts, each of which has a particular purpose, or specialized function. If one part of the plant is not functioning properly, the whole plant will suffer. But we may cut flowers off the plant or prune the roots. Such damage is only temporary and so the plant will continue to grow.

The basic parts of a plant are the root system, which is below the ground, and the shoot system above. The root of a plant has two main functions. It takes in, or absorbs, water and minerals from the soil through the root hairs, which are single cells near the tip of each root. The other function of the root is to hold, or anchor, the plant firmly in position in the soil.

Plant such as sugar beet and carrots are able to store food in their roots. In this way they can keep growing for more than one season. In addition, plant such as clover and lucerne, known as "legumes", have special bacteria, which live on the roots. These simple forms of life take nitrogen out of the air which is in the soil. Such leguminous plants are usually ploughed under the soil. By doing this, the soil is made more fertile.

The shoot system above the ground consists of the stem, the leaves, flowers and fruits. One of the functions of the stem is to support the plant. Another important function is to enable water and minerals to pass up from the roots to the leaves and flowers. Organic materials such as sugar travel down the stem to the roots. The leaves grow out of the side of the stem. Their main job is to make food for the plant by the process known as photosynthesis. For this process sunlight is neces-

sary. Water from the soil and carbon dioxide from the air are converted into sugars and other carbohydrates. During the process oxygen is formed and released into the air. The flower contains the reproductive organs of the plant. The stamens produce the male sex cells, or spermatia, which are carried in the pollen grains. The carpel produces the female cells, or ovules. The fruit, the ripened ovary of the flower, encloses the seeds and protects them while they are developing. The seeds itself consists of an embryo and foodstore. The embryo is the part which will develop into another plant and the foodstore is necessary to provide nourishment for the young plant while it is growing.

## Exercise

### 1. Word building

#### (1) Labeling a plant (Figure 1)

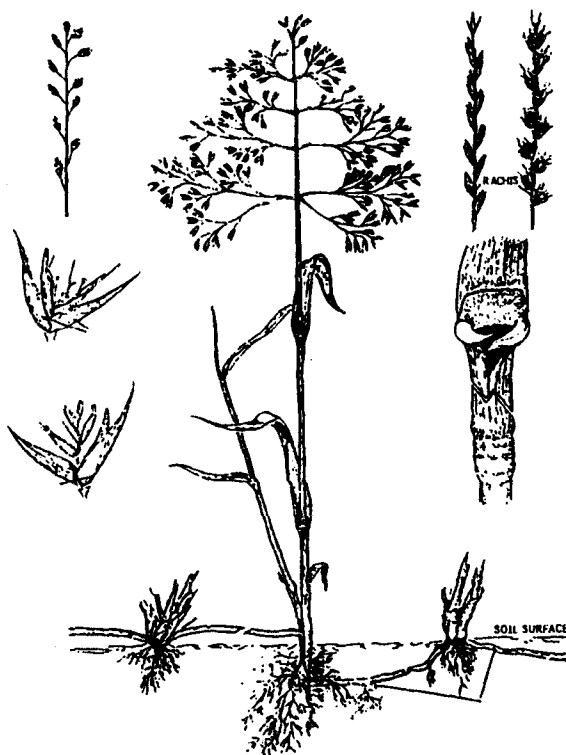


Figure 1 Plants and their parts

(2) Some useful prefixes

mono-: monochrome, monogenic, monogenesis, monoploid, monosome.

bi-: binary, bicolour, biennial, bicarpellary.

di-: digenesis, digenetic, digamety, diploid, dioxide.

tri-, ter-: triangle, triploid, trilateral, tertiary.

tetra-: tetraploid.

penta(o)-: pentagon, pentose.

hexa(o)-: hexose.

2. Translate the text into Chinese

3. Reading exercise

Plants

Plants grow rooted in the soil. If you grasp a plant and pull it the roots may not come out of the soil easily. The top part of the plant may break off, leaving the roots in the soil. You may have to pull very hard indeed to uproot the whole plant. Gardeners know this, so when they are weeding they fork over the ground to loosen the roots of the weeds before trying to remove the weed plants.

The roots keep the plant firmly fixed in the soil. They also support the stem of the plant so that the leaves can receive the light of the sun. The roots may be white or brown in colour. The water that the plants need from the soil is absorbed by the roots.

The Shoot

The shoot grows above the ground in the light. On the stem there are buds. These may produce flowers, or they may make leaves. These buds usually occur just above the place, called the axil, where a leaf joins the stem.

There is one bud at the end of the stem. This bud is where the stem gets longer, so it is here that growth occurs. There are also a number of side buds in the axil of the leaf. These buds will sometimes also grow, giving the plant a bushy shape.

## The Leaves

Leaves are usually green. If you see a grass leaf you know that it comes from a grass plant. You know what an oak leaf looks like. You know a clover leaf when you see one. All the leaves that grow on a certain type of plant have the same sort of shape. If you look at a leaf you will see that it is often thin and flat. The edge of the leaf may be smooth or it may be toothed, like a saw. The edge of the oak leaf is toothed, but the teeth are large and blunt. Leaves like the oak and the apple are called the simple leaves. The strawberry and clover leaves are so deeply cut that each leaf looks as if it is three leaves. These leaves are called compound leaves. The parts of the leaf are called leaflets. There is no bud at the base of the leaflets. There is only a bud at the base of the leaf stalk. All leaves have a bud in the axil where they join the stem.

Running down the centre of each leaf is a thick ridge. This is the main vein. There are many smaller veins branching off this vein. These smaller veins may branch again to form even smaller veins. Veins are harder than the rest of the leaf-blade and they form the skeleton of the leaf. They carry food and water between the leaf and stem. When the leaf falls off the plant the thin blade will rot quickly, but the veins will often survive for a long time. You may find leaf skeletons under hedges.

The leaves of the grasses grow from their base so they get longer all the time, This is why the grass has to be cut during the summer. In the grasses the veins are nearly parallel. However in many plants the veins form a net.

If you cut a leaf of a net – veined plant it will not grow again. It will remain the shape you have cut it, until it falls off the plant.

## Lesson 2

### The Life Cycle of a Plant



