

# 粮油科技英语

注释读物

顾华孝 编

郑州粮食学院

Technical English Reading  
on Cereal Grain Engineering

粮 油 科 技 英 语

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郑 州 粮 食 学 院

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# 前 言

本书为粮食系统大专院校专业英语试用教材，也可作为粮食业务部门及科研部门自修英语读者的自学读物，以提高阅读专业英语书刊的能力。

本书内容包括粮食品质及检验、粮食贮藏、粮食加工、油脂制取、粮食机械、粮仓建筑、配合饲料生产、综合利用，以及自动检测及控制等方面的基础知识。文章选自国外粮油科学技术方面的原著，选材范围较广，文体、题材也较多样。全书共四十篇短文，分为九个单元。每篇短文后都附有词汇表、语法注释和参考译文。全书共有单词及词组约2500个，插图25幅。书末附有总词汇表，便于读者查阅。

在本书编写过程中，郑州粮食学院秦礼谦同志作了审阅；北京外国语学院许国璋，上海交通大学凌渭民、杨顾行，四川大学朱文振，无锡轻工业学院沈学源、朱斌昕，粮食部科学技术情报研究所胡守泰，上海粮食科学研究所朱耀炳，粮食部河南粮食科研设计所荣兰荪，南京粮食学校文永昌等同志作了评审和指导，提了许多宝贵意见，在此深表谢意。郑州市粮食局巴自力同志绘制了全书插图，一并致谢。

由于编者水平有限，本书的缺点和错误在所难免，望读者多提意见，以便修正。

顾华孝

1980年11月

## 本书所用语法术语略语表

|       |                   |       |
|-------|-------------------|-------|
| a.    | Adjective         | 形容词   |
| ad.   | Adverb            | 副词    |
| conj. | Conjunction       | 连词    |
| inf.  | Infinitive        | 动词不定式 |
| n.    | Noun              | 名词    |
| prep. | Preposition       | 介词    |
| pron. | Pronoun           | 代词    |
| v.    | Verb              | 动词    |
| vi.   | Intransitive Verb | 不及物动词 |
| vt.   | Transitive Verb   | 及物动词  |

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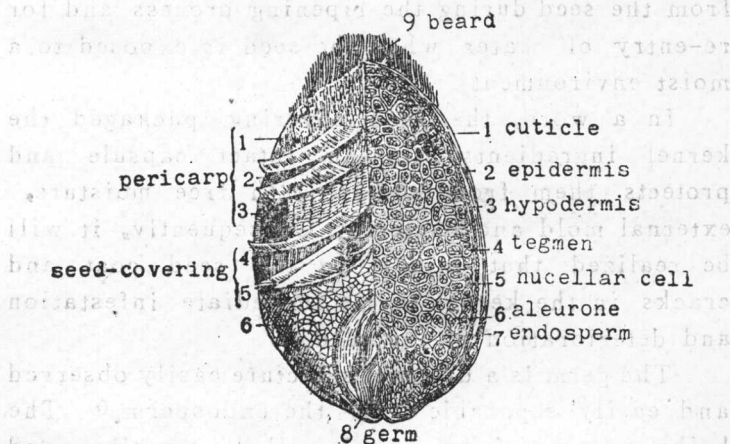
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# Unit 1

## 1. Seed-Grain Structure

All cereal grain seeds consist of two major components, the germ, which is an embryo plant, and the endosperm, which is a package of stored food.<sup>①</sup> These two structures are packaged together within a wrapping, the pericarp (seed-covering).<sup>②</sup>



wheat grain, longitudinal section showing bran layers

The pericarp consists of several cell layers that more or less seal and protect the germ and endosperm from the external environment.<sup>③</sup> From

the surface inwardly these cell layers are arranged in sequence and called the cuticle, epidermis and hypodermis (mesocarp).<sup>④</sup> The innermost cells of the pericarp are cross-oriented in relation to the other cells, and they are separated by intercellular spaces that interconnect with each other, and with intercellular spaces at the base of the kernel where it attaches to the feeding plant.<sup>⑤</sup> This point of attachment provides entry of kernel ingredients from the plant to the kernel during formation. Also, it provides a point for escape of moisture from the seed during the ripening process and for re-entry of water when the seed is exposed to a moist environment.

In a word, the seed covering packaged the kernel ingredients into an intact capsule and protects them from contact with free moisture, external mold and bacteria. Consequently, it will be realized that injury to the seed coat and cracks in the kernel invite immediate infestation and deterioration of the seed.<sup>⑥</sup>

The germ is a distinct structure easily observed and easily separable from the endosperm.<sup>⑦</sup> The bulky portion of the germ is called a scutellum and it is the feeding organ of the embryo.<sup>⑧</sup> Digestion of food from the endosperm and transport of food to the embryo is by way of the scutellum.<sup>⑨</sup> Most of the oil, sugar and ash is found in the germ, and about 20 ~ 25 percent of the total protein is

found there.

The endosperm is also a distinctly obvious structure constituting from 80 ~ 85 percent of the total kernel. The outermost layer of cells surrounding the endosperm is the aleurone where most of the storage protein is located.<sup>⑩</sup> The rest of the endosperm is made up of soft starch and hard starch. Virtually all of the starch in the kernel and most of the protein is found in the endosperm. As has been said, the endosperm is the food package.<sup>⑪</sup> The food is primarily in the form of chemically bonded starch that supplies the energy necessary to maintain the seed's life (respiration and metabolism) and to promote embryo growth (germination) when conditions are favorable.<sup>⑫</sup> And there is also food (aleurone) that eventually is used to supply the protein "building blocks" for the growth and the differentiation of the embryo.<sup>⑬</sup>

Through the winter the seed is in a dormant or quiescent condition. As the time for growth approaches, the storage-starch and the storage-protein will be changed to usable food forms.<sup>⑭</sup> In fact, the germ is unable to utilize the stored food if it is not "digested".<sup>⑮</sup> This digestion is termed hydrolysis.

## Words

seed [si:d] n. 籽

grain [grein] n. 粮食,

小粒

structure ['strʌktʃə]

n. 结构, 组织  
cereal ['siəriəl] a. 禾谷类的; n. 谷物, 粮食  
major ['meidʒə]  
a. 主要的  
component [kəm'pou-nənt] n. 组分, 成分  
germ [dʒə:m]  
n. 胚, 胚芽  
embryo ['embriou]  
n. 胚, 胚胎  
plant [plɑ:nt] n. 植物,  
工厂, 车间, 装置  
embryo plant 胚体  
endosperm ['endou-spə:m] n. 胚乳  
package ['pækidʒ]  
n. 包; vt. 包装  
store [stɔ:] n.; vt. 贮藏  
food [fu:d] n. 食物,  
养料  
wrapping ['ræpiŋ]  
n. 包衣  
pericarp ['perika:p]  
n. 果皮  
seed-covering [si:d-'kʌvəriŋ] 种皮  
several ['sevrəl] a. 几个  
cell [sel] n. 细胞, 子房

室, 仓筒  
layer ['leɪə] n. 层  
seal [si:l] vt. 密封, 气密; n. 闭风器  
protect [prə'tekt] vt. 保护  
external [eks'tɜ:nl] a. 外面的, 外部的, 外界的  
environment [in'vaɪə-rənment] n. 环境  
surface ['se:fis] n. 面, 表面, 外表, 外观  
inwardly ['inwədli]  
ad. 向里面  
arrange [ə'reindʒ] v. 安排, 排列  
sequence ['si:kwəns]  
n. 继续, 顺序  
cuticle ['kju:tɪkl]  
n. 角质层  
epidermis [epi'dɜ:mɪs]  
n. 表皮层, 外皮, 外壳  
hypodermis [haɪpə'dɜ:-mis] n. 下皮, 皮下组织  
mesocarp ['mesəka:p]  
n. 中果皮  
innermost ['ɪnəmoust]  
a. 最里面的, 最深处的  
cross-oriented

['krə'sɔ:riəntəd]

a. 横向排列的

relation [ri'leiʃən] n.

关系, 联系

separate ['sepəreit] v.

分离, 隔开; a. 分开的, 单独的

intercellular [,intə'se-ljulə] a. 细胞间的

space [speis] n. 空间, 间隔

interconnect ['intəkə-'nekt] v.; n. 相互联系, 相互结合

base [beis] n. 基础, 底部, 底层, 基地

kernel ['kə:nl] n. 核, 谷仁

feeding ['fi:diŋ] n.; a. 供给, 饲养

attachment [ə'tætʃ-mənt] n. 附着(物), 连接(法)

provide [prə'vaɪd] v. 提供, 供给

entry ['entri] n. 进口

ingredient [in'gri:djənt] n. 组分, 配料, 成分  
formation [fə:'meɪʃən]

n. 形成

escape [is'keɪp] v. 逸出

moisture ['moɪstʃə] n.

湿度, 水分, 潮气

ripen ['raɪpen] v. 成熟

process ['prəʊses] n.

过程, 工序; vt. 加工

ripening process ['raɪ-pənɪŋ 'prəʊses]

成熟过程

re-entry ['ri:'entri] n.

再进入, 返回

expose [iks'pəʊz] v. 暴露, 使遭受

moist [məɪst] a. 潮湿的

shield [ʃi:ld] n. 小盾片, 胚鳞

intact [ɪn'tækt] a. 未受损伤的, 未经触动的, 完整的

capsule ['kæpsju:l] n. 蒴果

contact ['kɒntækt] n.; v. 接触

free [fri:] a. 自由的, 不受约束的, 游离的

free moisture 游离水分

mold = mould [maʊld] n. 霉菌

bacteria [bæk'tiəriə]

n. 细菌

consequently ['kɒnsi-

kwəntli] ad. 结果

realize ['riəlaiz]

vt. 意识到

injury ['indʒəri] n. 伤痕

coat [kəʊt] n. 颖皮

crack [kræk] n., vt.

破裂

invite [in'vaɪt] vt. 招致

immediate [i'mi:dʒət]

a. 直接的, 立即的

infestation [infes'tei-

ʃən] n. 蔓延, 大量感染

deterioration [di,tieriə-

'reiʃən] n. 劣变, 变质

distinct [dis'tɪŋkt]

a. 与众不同的, 独特的,  
清晰的

observe [əb'zə:v]

vt. 观察

separable ['sepərəbl]

a. 可分开的

bulky ['bʌlki] a. 庞大的

portion ['pɔ:ʃən]

n. 一部分

scutellum [skju:'teləm]

n. 盾片

organ ['ɔ:gən] n. 器官,

元件

digestion [di'dʒestʃən]

n. 消化作用

transport [træns'pɔ:t]

vt., n. 运输

oil [ɔɪl] n. 油

sugar ['ʃugə] n. 糖

ash [æʃ] n. 灰分

percent [pə'sent]

n. 百分率

total ['təʊtl] a. 总的

protein ['prəʊti:n]

n. 蛋白质

distinctly [dis'tɪŋktli]

ad. 显然, 清楚地

obvious ['ɒbvɪəs]

a. 明显的

constitute ['kɒnstɪtju:t]

vt. 构成

outermost ['autəmoust]

a. 最外面的, 远离中心的

surround [sə'raʊnd]

vt. 围绕, 环绕

surrounding [sə'raʊn-

dɪŋ] a. 周围的, n. 环境

aleurone [ə'ljuərəʊn]

n. 糊粉层

storage ['stɔ:ridʒ]

n. 贮藏, 仓库  
locate [lou'keit]  
v. 把……设置在, 置于  
rest [rest] n. 剩余部分,  
静止  
soft [sɒft] a. 软的,  
软质的  
starch [stɑ:tʃ] n. 淀粉  
hard [hɑ:d] a. 硬的,  
硬质的  
virtually ['və:tjuəli]  
ad. 实质上, 事实上  
primarily ['praɪməri] ad.  
首先, 首要地  
form [fɔ:m] n. 形状, 形  
式; v. 构成, 形成  
chemically ['kemikəli]  
d. 化学上  
bond [bɒnd] v. 结合;  
n. 键, 粘合剂, 结合  
supply [sə'plai] vt.,  
n. 供给, 供料, 供应  
energy ['enədʒi]  
n. 能量, 精力  
necessary ['nesisəri] a.  
必要的, 必需的  
maintain [men'tein] vt.  
维持, 供养  
respiration [ˌrespə'rei-

ʃən] n. 呼吸作用  
metabolism [me'tæbəli-  
zəm] n. 代谢作用  
promote [prə'məʊt] vt.  
促进, 助长  
growth [grəʊθ] n. 生长,  
增长  
germination [dʒə:'mi-  
'neɪʃən] n. 发芽  
condition [kən'diʃən]  
n. 条件, 状况  
favorable ['feɪvərəbl]  
a. 有利的  
eventually [i'ventʃuəli]  
ad. 终于, 最后  
building ['bɪldɪŋ]  
n. 建筑物, 建造  
block [blɒk] n. 砌块, 块  
differentiation  
[,dɪfə'renʃi'eɪʃən]  
n. 分化作用, 变异  
dormant ['dɔ:mənt]  
a. 休眠的  
quiescent [kwai'esnt]  
a. 抑制的  
approach [ə'prəʊtʃ]  
vi. 接近, 靠近  
change [tʃeɪndʒ] v., n.  
改变, 变化



usable ['ju:zəbl] a. 可  
用的, 能用的, 合用的  
unable ['ʌn'eibl] a. 不  
能的  
utilize ['ju:tilaiz] vt.  
利用  
digest [di'dʒest, dai-  
'dʒest] v. 消化(食物)  
hydrolysis [hai'drə-  
lisis] n. 水解作用  
tegmen ['tegmen]

n. 内种皮  
nucellar ['nju:selə] a.  
珠心的  
beard ['biəd] n. 麦毛  
wheat [hwi:t] n. 小麦  
longitudinal [,lɒndʒi-  
'tju:dinəl] a. 纵的  
section ['sekʃən] n.  
剖面图, 部分, 部件  
bran [bræn] n. 麸皮,  
米糠, 皮

## Phrases and Expressions

consist of 由……组成  
more or less 或多或少,  
多少有点, 大约  
in sequence 顺次, 按照  
次序  
in relation to 关于, 相  
对于, 对于……来说, 与  
……有关  
each other 相互, 彼此  
attached to 附属于, 连接  
在……上, 固定在……上  
(to be) exposed to 置

于……处, 受到, 招致  
in a word 总而言之  
protect...from... 使……  
不遭受……  
by way of 当做, 作为,  
经由  
most of 大多数的  
(to be) made up of 由  
……所组成  
in fact 其实, 实际上  
unable to 不能

## Notes

①the germ, and the endosperm 都是主句宾语compo-