

农机专业英语文选

农业机器部分

陶立三 黎斌初主编

商务印书馆

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前 言

本书是为具有一定基础英语知识的农机专业的学生以及从事农机工作的工程技术人员进一步提高阅读本专业的英语书刊的能力而编写的。全书分拖拉机和农业机器两册，各自独立，起点相同。

书中文章选自原文，个别地方稍有删改，专业内容浅近易懂，全书除农业机器部分最后一课为综合阅读材料外，各课均附有单词和注释，部分课文附有插图；最后还有参考译文和总词汇表，以便读者查考。

本书由北京农机学院外语教研室陶立三、黎斌初主编，杨懋新、孟宪珍、杨茂宗、白崇恩、左润之、闻丽筠等参加编写；内燃机教研室顾城和运用教研室张圣虎作专业校订。在编写过程中，我们得到了本院及其他兄弟院校不少同志的支持和帮助，特此表示感谢。

由于编者水平有限，书中肯定存在不少缺点错误，热烈欢迎读者提出宝贵的批评意见，以便进一步改进。

编 者

1979年4月8日

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1. MOULDBOARD PLOUGHS

Two types of mouldboard plough are commonly used on farms.

- (a) Mounted. The plough is attached directly to the 3-point linkage of the tractor; but a wheel is often fitted to control the working depth. Sometimes a wheel, operated by linkage or by hydraulic power, is attached to the rear of large ploughs to help to carry the weight when the plough is not in work^①.
- (b) Trailed. The plough is pulled by a drawbar attached to the tractor. Wheels are always fitted to control the working depth and to carry the plough when it is not in work.

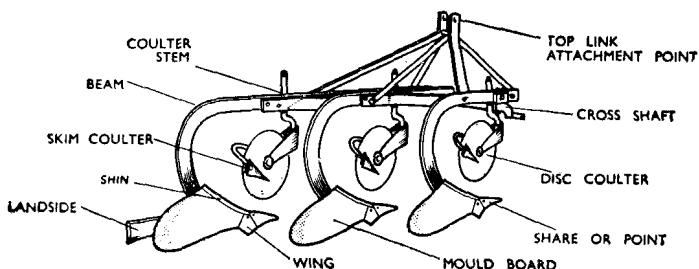


Fig. 1. Mouldboard Plough

A typical plough is illustrated in Fig. 1. The main components are:

The share. The share makes a horizontal cut under the furrow slice and starts the turning movement which is continued by the mouldboard.

The frog. This is the casting or pressing to which the share, mouldboard and landside are attached②. The frog is bolted to the beam and on some ploughs provision is made at this point to allow the frog to be tilted, thus altering the pitch, the inclination vertically downwards, to compensate for slight distortion in the beam or for very hard conditions③. However, excessive pitch will stop the plough entering the soil correctly④, will cause excessive wear and will produce a rough furrow bottom.

The mouldboard. The mouldboard turns over the furrow slice to bury surface vegetation and to leave the slice in a suitable condition for weathering or for the following cultivation.

The disc coulter. The disc coulter makes a vertical cut in the soil to separate the furrow slice from the unploughed land and to enable the share and mouldboard to turn a clean furrow slice.

In very hard ground the disc may act as a wheel and tend to carry the plough thus preventing proper penetration: in these conditions it is advisable to raise the disc and to move it rearwards⑤.

The skim coulter. The skim coulter takes a small furrow from the landside of the furrow slice and turns it into the furrow bottom before the main slice is completely turned. This prevents any surface trash from poking out from between the furrow slices.

The landside. This fits to the plough frog and presses

against the furrow wall taking the thrust produced by the mouldboard as it turns the furrow slice⑥. On some ploughs the landside is made in two parts, a fixed part attached to the frog and a rolling part which looks like a wheel. The latter can turn as it presses against the furrow wall thus cutting down wear. Due to the fact that it can move vertically against spring pressure, as the plough is entering the ground at the headland, the plough attains a working depth sooner than it would if fitted with a fixed landside⑦.

Words and Expressions

mouldboard ['mouldbɔ:d] *n.* 犁壁
 ~ plough 犁式犁
commonly ['kɒmənlɪ] *ad.* 通常, 一般
mounted ['maʊntɪd] *a.* 悬挂(式)的
attach [ə'tætʃ] *vt.* 相连; 接近
 be ~ ed to 连接在……上
3-point = three-point ['θri: point]
a. 三点的
linkage ['lɪŋkɪdʒ] *n.* 悬挂装置; 杆件
fit [fɪt] (fitted; fitting) *vt.* 安装; 配合
depth [depθ] *n.* 深度
 working ~ 耕作深度
operate ['ɒpəreɪt] *vt.* 操作; 开动
hydraulic [haɪ'drɔ:lik] *a.* 液力的, 液压的
 ~ power 液力
rear [rɪə] *n.* 后部
trailed ['treɪld] *a.* 牵引(式)的
drawbar ['drɔ:bɑ:] *n.* 牵引杆; 拉杆
typical ['tɪpɪkəl] *a.* 典型的, 标准的
illustrate ['ɪləstreɪt] *vt.* (用图或例子等)说明, 阐明
component [kəm'pəʊnənt] *n.* 部

件, 元件; (组成)部分, 成分
share [ʃeə] *n.* 犁铧
horizontal [hɒrɪ'zɒntl] *a.* 水平的, 卧式
furrow ['fʌrəʊ] *n.* 犁沟
 ~ slice 垡片
frog [frɒɡ] *n.* 犁托
pressing ['presɪŋ] *n.* 冲压件
landside ['lændsaɪd] *n.* 犁侧板
bolt [bəʊlt] *n.* 螺栓 *vt.* 用螺栓固定
provision [prə'vɪʒən] *n.* 预备; 设备, 装置
tilt [tɪlt] *vt.* 使倾斜, 使歪斜
alter ['ɔ:lteɪ] *vt.* 改变
pitch [pɪtʃ] *n.* 犁的垂直间隙; 倾斜度
inclination [ɪnklɪ'neɪʃən] *n.* 斜度, 倾度
vertically ['vɜ:tɪkəli] *ad.* 垂直地
downwards ['daʊnwədz] *ad.* 向下
compensate ['kɒmpenseɪt] *vt.* 补偿, 弥补
 ~ for 补偿, 抵偿
slight [slait] *a.* 微小的, 微量的

distortion [dis'tɔ:ʃən] *n.* 歪曲, 变形
condition [kən'diʃən] *n.* 条件, 状况, 状态
excessive [ik'sesiv] *a.* 过多(大)的, 过分的
wear [weə] *n.* 磨损
rough [rʌf] *a.* 表面不平的, 粗糙的
bury ['beri] *vt.* 掩埋, 覆盖
leave [li:v] (*left* [left]) *vt.* 离开; 留下
suitable ['sju:təbl] *a.* 合适的; 适当的
weather ['weðə] *n.* 天气 *vt.* 晒(使经受日晒风霜)
cultivation [ˌkʌlti'veiʃən] *n.* 耕作
disc [disk] *n.* 圆盘
coulter ['kəʊltə] *n.* 犁刀
 disc ~ 圆犁刀
unploughed [ʌn'plaud] *a.* 未犁耕的
tend [tend] *vi.* 趋向; 倾向
 ~ (+inf.) 倾向于……, 总是……
penetration [peni'treiʃən] *n.* 入土; 穿透

advisable [əd'vaɪzəbl] *a.* 可取的, 适当的
 it is ~ to ... 最好是……
rearwards ['riəwədz] *ad.* 向(在)后
skim [skim] *n.* 铲削, 刮削; 小前犁
 ~ coulter 小前犁
completely [kəm'pli:tli] *ad.* 完全
trash [træʃ] *n.* (植物) 叶子, 残茎, 残叶
poke [pouk] *vi.* 冒出, 伸出
 ~ out 冒出
press [pres] *vi.* 压
 ~ against 挤压
wall [wɔ:l] *n.* 墙, 壁
 furrow ~ 沟墙(壁)
thrust [θrʌst] *n.* 侧向压力; 推力
roll [roul] *vi.* 滚动
latter ['lætə] *a.* 后面的
 the ~ 后者
due [dju:] *to* 由于
headland ['hedlənd] *n.* 地头
attain [ə'tein] *vt.* 达到; 获得

Notes

- ① Sometimes a wheel, operated by linkage or by hydraulic power, is attached to the rear of large ploughs to help to carry the weight when the plough is not in work. 句中分词短语 operated by linkage or by hydraulic power 为非限制性定语(其前后用逗号分开), 修饰 wheel; 不定式 to help 为目的状语, 修饰 is attached; 不定式短语 to carry the weight 为 to help 的宾语。全句可译为: 有时在大型犁的后部配置一个由杆件或液压操纵的轮子, 用以在犁不工作时帮助支承犁重。
- ② the casting or pressing to which the share, mouldboard and land-side are attached: 关系代词 which 引导的定语从句修饰 casting or pressing, 介词 to 为 attached (表示“与……相连接”)所要求。可译为: 连接犁铧、犁壁和犁侧板的铸件或冲压件。
- ③ provision is made at this point to allow the frog to be tilted, thus altering the pitch, the inclination vertically downwards, to compen-

sate for slight distortion in the beam or for very hard conditions. 句中 at this point 指在犁托和犁梁的连接处; 不定式短语 to allow the frog to be tilted 作定语, 修饰 provision; to be tilted 为不定式 to tilt 的被动态, 作宾语补足语; 不定式短语 to compensate for ... conditions 为目的状语, 修饰 to be tilted。可译为: 在犁托和犁梁的连接处备有一个装置, 可使犁托倾斜, 从而改变犁铧垂直间隙, 即犁铧垂直向下的斜度, 以弥补犁梁的微量变形或适应坚硬的土质条件。

- ④ stop the plough entering the soil correctly: 妨碍犁的正确入土。其中 the plough entering the soil correctly 为带逻辑主语 (the plough) 的动名词短语, 作 stop 的宾语。
- ⑤ it is advisable to raise the disc and to move it rearwards: 前一个 it 为形式主语, 实际主语为不定式短语 to raise the disc 和 to move it rearwards; 后一个 it 代表 disc。可译为: 最好把圆犁刀升高并使其向后移。
- ⑥ taking the thrust produced by the mouldboard as it turns the furrow slice: 以便承受犁壁翻垡时所产生的侧向推力。taking the thrust ... 为分词短语, 作目的状语, 修饰动词 presses; as it turns the furrow slice 为时间状语从句, 修饰分词 produced。
- ⑦ Due to the fact that ... if fitted with a fixed landside. 本复合句的主句为 the plough attains ... depth sooner; that 引导同位语从句, 进一步说明 the fact, as 引导时间状语从句, 修饰 can move; than it would 相当于 than it would attain a working depth, 为比较状语从句, if fitted ... landside 相当于 if it (代表 the plough) were fitted with a fixed landside, 为虚拟条件句。全句可译为: 这种犁在地头入土时, 由于滚动部分能克服弹簧压力垂直运动, 所以较装有固定犁侧板的犁能更快地达到耕作深度。

2. DISC PLOUGHS

The disc plough is a type of plough generally used where conditions are very hard and rough and totally unsuitable for use of the conventional mouldboard plough. It is not a plough often used in countries with temperate and moist climates except perhaps to carry out reclamation work or to plough land in which there is much stone and tree root^①. In tropical countries where the climate is hot and the land bakes hard, the disc plough is more likely to be in favour.

This plough is unlike the mouldboard plough in that it does not have a share^②, mouldboard, or coulter to cut and invert a furrow slice, but instead it has a heavy steel concave disc of about 60—70 cm (2—2 ft 6 in.) diameter which carries out a similar but not by any means identical function to the mouldboard and share^③. As a disc plough is pulled along, the discs rotate cutting into the soil and the so-called furrow slice is caused to rise up in the concavity of the disc, to be broken up as it does so, and then thrown sideways^④. Tidy, even, completely inverted furrows are not normally produced, nor are trash and weeds buried as with a conventional plough^⑤.

Disc ploughs may be trailed or mounted as are the mouldboard ploughs^⑥. A trailed type may have up to six discs and is thus a very heavy implement utilizing its weight to assist penetration when working in hard conditions^⑦.

A mounted type usually has up to five discs and is thus necessarily lighter to enable it to be carried by a tractor^⑧. However, to achieve penetration when working in hard conditions it may be necessary to add weight to the plough. Disc ploughs with more than six discs are usually known as pollydisc ploughs and have discs of about 50 cm (20 in. approx.) diameter. The discs may be plain or cutaway. Cut-away discs more effectively bite and cut into hard soil conditions.

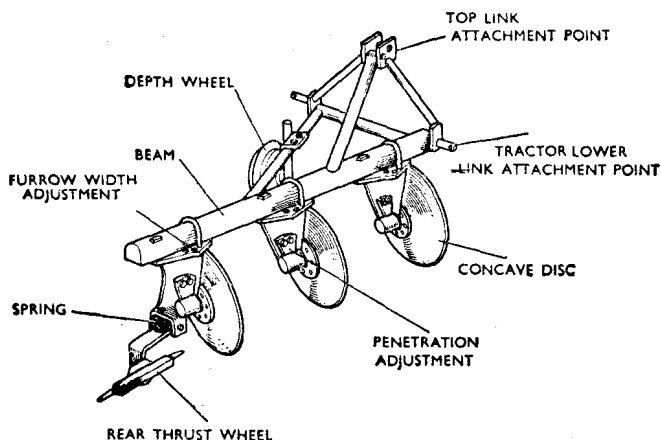


Fig. 2. Mounted Disk Plough

Figure 2 shows an illustration of a typical mounted disc plough. So that the plough can be made to work satisfactorily in various conditions^⑨ a number of adjustments are usually provided on it. The mounted plough is attached to the tractor on the three point linkage and adjustment to the top link and/or the right-hand lifting rod serves to level the plough^⑩. Depth of work is set by alteration

of the height of the depth wheel or where a depth wheel is not fitted, by a setting on the hydraulic depth control. When the depth is set, the beam should be set horizontal by adjusting the top link and the plough level by adjusting the lifting rod.

Width of furrow may in some cases be altered by changing the position of the disc in relation to the beam to which it is attached^①. This can involve, in effect, slight rotation of the disc so that the angle of the disc to the line of pull is greater or less. Whilst this will alter the furrow width it will also make the plough more difficult to pull and cause the furrow to be thrown farther sideways, if the angle is made greater. Alteration of the vertical angle of the disc will affect penetration by the disc. The more vertical the disc, the greater will be the penetration.

The rear wheel of a disc plough is spring loaded to maintain a pressure causing it to cut into the soil and it is also set to run at an angle to counteract the considerable side thrust set upon the plough when the furrows are moving over the discs. On some ploughs there may be vertical and lateral adjustment on this wheel to correct any tendency of the plough to swing at the rear.

Words and Expressions

totally ['təʊtəli] *ad.* 完全

unsuitable [ʌn'sju:tbəl] *a.* 不适宜的, 不合适的

conventional [kən'venʃənəl] *a.* 传统的; 通用的

temperate ['tempərɪt] *a.* (气候) 温和的

moist [moɪst] *a.* 湿润的

climate ['klaɪmɪt] *n.* 气候

reclamation [ˌrekleɪ'meɪʃən] *n.* 开荒, 垦殖

root [ru:t] *n.* 根

tropical ['trɒpɪkəl] *a.* 热带的

bake [beɪk] *v.* 烤, 烘

likely ['laɪkli] *a.* (似有) 可能的

~ *to do* 能……的

favour ['feɪvə] *n.* 好意, 欢心
be in ~ 受欢迎
invert [ɪn'vɜ:t] *vt.* 翻转, 翻过来
concave ['kɒn'keɪv] *a.* 凹的
~ disc 凹面圆盘
similar ['sɪmɪlə] *a.* 同样的, 类似的
be ~ to 类似于……
by any means 无论如何; 总而言之
identical [aɪ'dentɪkəl] *a.* 同一的, 完全一样的
function ['fʌŋkʃən] *n.* 功用, 作用
rotate [rəu'teɪt] *vi.* 转动, 旋转
so-called ['səukɔ:ld] *a.* 所谓
rise [raɪz] *vi.* 上升, 升高
concavity [kɒn'kævɪti] *n.* 凹处; 凹面
throw [θrəu] (threw, thrown) *vt.* 抛, 扔
sideways ['saɪdweɪz] *ad.* 斜着, 从旁边
tidy ['taɪdi] *a.* 整齐的
even ['i:vən] *a.* (表面) 平坦的
normally ['nɔ:məli] *ad.* 正常地
weed [wi:d] *n.* 杂草
up to 直到……
implement ['ɪmplɪmənt] *n.* 机具; 农具
utilize ['ju:taɪlaɪz] *vt.* 利用
assist [ə'sɪst] *vt.* 辅助, 协助
polydisc ['pɒlɪdɪsk] *a.* 多圆盘的
~ plough 多圆盘犁, 垂直圆盘犁
approximately [ə'prɒksɪmɪtli] *ad.* 大约, 差不多
plain [pleɪn] *a.* 普通的; 简单的
cutaway ['kʌtəwei] *a.* 缺口的; 剖面的
effectively [ɪ'fektɪvli] *ad.* 有效地, 有力地

bite [baɪt] *vt.* 咬住, 抓住
satisfactorily [sætɪs'fæktərɪli] *ad.* 令人满意的
adjustment [ə'dʒʌstmənt] *n.* 调整, 调节
link [lɪŋk] *n.* 拉杆
top ~ 上拉杆
right-hand ['raɪthænd] *a.* 右手的, 右边的
rod [rɒd] *n.* 杆
lifting ~ 提升杆
alteration [ɔ:l'tə'reɪʃən] *n.* 改变, 变更
height [haɪt] *n.* 高, 高度
width [wɪð] *n.* 宽, 宽度
relation [rɪ'leɪʃən] *n.* 关系
in ~ to 关于……, 与……有关
envolve (=involve) [ɪn'vɒlv] *vt.* 包含
effect [ɪ'fekt] *n.* 结果; 作用
in ~ 实际上
rotation [rəu'teɪʃən] *n.* 转动
pull [pul] *n.* 牵引; 拉力
line of ~ 牵引线, 拉力线
whilst ['hwɪlst] (=while) *conj.* 同时, 而
farther ['fɑ:ðə] *ad.* 较远, 更远
affect [ə'fekt] *vt.* 影响
maintain [men'teɪn] *vt.* 支持, 保持; 保养
counteract ['kauntərækt] *vt.* 抵消
considerable [kən'sɪdərəbl] *a.* 相当大(或多)的
lateral ['lætərəl] *a.* 侧向的, 横向的
tendency ['tendənsi] *n.* 倾向, 趋势
swing [swɪŋ] *vi. & n.* 摇摆, 摆动
rear [rɪə] *n.* 尾部

Notes

- ① except perhaps to carry out reclamation work or to plough land in which there is much stone and tree root: 或许除开垦荒地或翻耕石头、树根较多的耕地之外。不定式 to carry out 和 to plough 作介词 except 的宾语。
- ② This plough is unlike the mouldboard plough in that it does not have ...: 这种犁与铧式犁的不同之处在于它没有……。其中 that 为连词(无实际意义),它引导的从句作介词 in 的宾语。
- ③ which carries out a similar but not by any means identical function to the mouldboard and share: 圆盘的功用与犁壁、犁铧类似,但并不完全相同。which 引导的是定语从句,修饰 disc; similar 和 identical 共用一个介词短语 to the mouldboard and share 作状语。
- ④ the discs rotate ... and then thrown sideways: 句中分词短语 cutting into the soil 作状语,表示伴随 rotate 产生的动作;不定式 to raise 和被动态不定式 to be broken 及 (to be) thrown 并列,作主语 furrow slice 的补足语。本句可译为:圆盘旋转切入土壤,使所谓的壁片沿圆盘的凹面升起、破碎,然后被抛到一侧。
- ⑤ Tidy, even, completely inverted furrows are not normally produced, nor are trash and weeds buried as with a conventional plough. 句中“not (或 neither) ... nor”意为“既不……,也不……”,在以 nor 开头的分句中主谓语须倒装或部分倒装,本句为部分倒装,只把助动词 are 放在主语 trash 和 weeds 之前;as with 意为“如同……的情况一样”,由于其前有否定词 not 和 nor,故意义相反。全句可译为:(圆盘犁)和传统犁不一样,既不能翻耕出整齐、均匀、完全翻转的壁片,也不能复盖住残茬杂草。
- ⑥ Disc ploughs may be trailed or mounted as are the mouldboard ploughs. 句中 as 为关系代词,代表主句中的表语 trailed or mounted,并在从句中作表语,该从句倒装,主语为 the mouldboard ploughs。全句可译为:圆盘犁和铧式犁一样,有牵引式和悬挂式两种。
- ⑦ when working in hard conditions 相当于 when it (代表 implement) is working in hard conditions.
- ⑧ to enable it to be carried by a tractor: 使它能为拖拉机所带动。该不定式短语做状语,表示结果,修饰 lighter, 动词 enable (意为“使……能……”)后要求宾语及不定式作宾语补足语, to be carried 为不定式 to carry 的被动态。
- ⑨ So that the plough can be made to work satisfactorily in various

conditions: 为了使犁在各种条件下都能圆满地进行作业。so that 引导目的状语从句,它被置于主句之前,具有强调意味。

- ⑩ adjustment to the top link and/or the right-hand lifting rod serves to level the plough: 调节上拉杆和(或)右侧提升杆,即可把犁调平。adjustment to意为“对……的调节”; and/or 意为“和(或)”,在此指两者都调节或只调节其一; serve + inf. 意为“足以……”或者“作用是使”。
- ⑪ the position of the disc in relation to the beam to which it is attached: 圆盘与固定圆盘的犁梁之间的相对位置。介词短语 of the disc 和 in relation to the beam 均作定语,修饰 position。