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BARLEY

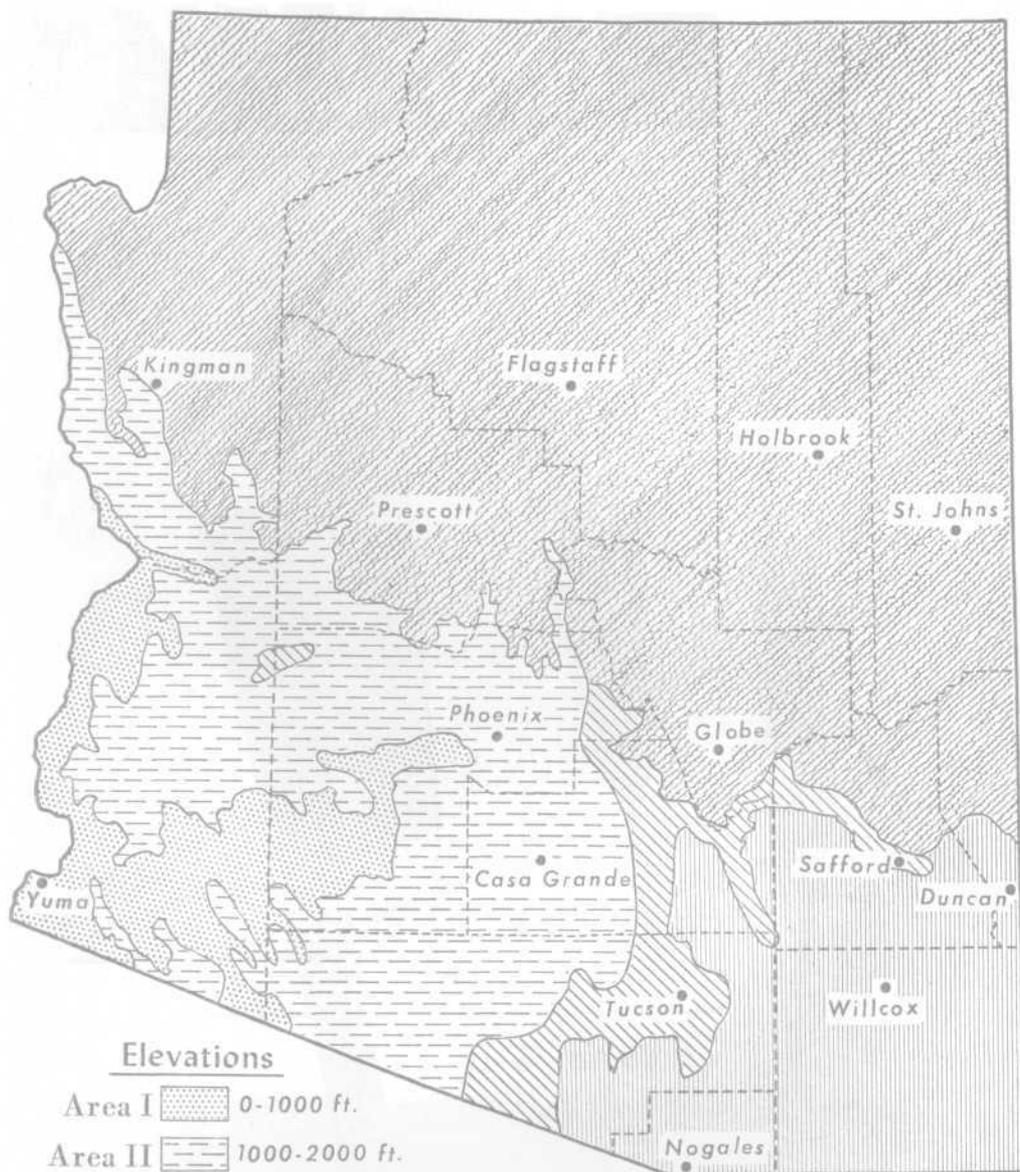
In Arizona



Bulletin A-15

AL NEFFELBERG

The University of Arizona
Cooperative Extension Service
&
Agricultural Experiment Station



Elevations

- Area I  0-1000 ft.
- Area II  1000-2000 ft.
- Area III  2000-3000 ft.
- Area IV  3000-4000 ft.
- Area V  4000-5000 ft.

Major Crop - Adaptation Areas in Arizona

(The University of Arizona is located at Tucson. County Extension offices are located in towns shown.)

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BARLEY

in Arizona

By

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COVER shows 3 barley head types; 6-row hooded, 2-row awned, & 6-row awned.

The authors gratefully acknowledge the valuable assistance of the following University of Arizona and U. S. Department of Agriculture personnel R. T. Ramage, K. C. Hamilton, Alvin Allen, Lyman R. Amburgey, G. E. Blackledge, William M. Brechan, David A. Brueck, George W. Campbell, Jr., James R. Carter, Clarence

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Barley is the most important small grain grown in Arizona. During the ten-year period 1948-57 the average annual Arizona barley acreage was 202,000 acres.

About 78 percent of the barley crop is grown for grain with some being pastured prior to grain harvest. The remaining 22 percent is used for winter pasture, green chopped feed, and hay.

The 1948-57 state average grain yield was 2,600 pounds per acre. Barley yields of 9 tons of green pasture forage, 17 tons of green chopped feed, or 10 tons of air-dry hay per acre have been obtained in southern Arizona. The University of Arizona College of Agriculture is conducting an intensive barley breeding and testing program in several areas of the state in

an effort to develop improved varieties for both grain and forage production.

Barley fits well into most crop rotations used in Arizona. A second crop such as sorghum may follow barley in the same year in southern Arizona, or the land may be left fallow after harvest. Barley may follow cotton, alfalfa, sorghum or other crops.

Barley's use of water comes primarily during the winter and spring months at a time when the water use of most other crops is at a minimum. However, according to studies by The University of Arizona, per-acre returns for land and management from barley have often been low in comparison to returns from a number of other field crops.

Climatic Areas of Arizona

Arizona presents many soil, water, and temperature conditions. Barley variety recommendations for each farm or ranch must take into consideration the specific growing conditions that exist. Variety research tests are conducted in many counties in Arizona and recommendations are based on the results obtained.

Variety suggestions made in this bulletin have been determined by elevation and climatic conditions. Many other factors such as yield, quality, winter hardi-

ness, straw strength, disease and insect resistance, and the use for which the crop is intended also have been given consideration.

The map on page 2 divides the State of Arizona into five geographical areas based on elevation. Each barley variety described is suggested for one or more of the five geographical areas. There is a County Agricultural Agent located in each city or town shown on the map. He will be glad to help you select a barley variety for your farm.

Choice of Variety

Use of High Quality Seed

High quality planting seed is essential for successful barley production. In addition to being a recommended and adapted variety, seed selected must have: (1) high germination, (2) proper size and development, (3) uniformity, (4) freedom from seedborne diseases, (5) freedom from noxious and other weed seeds and (6) freedom from mixtures with other crop seed.

Seed certified by the Arizona Crop Improvement Association is recommended whenever it is available. Certified seed is produced under the supervision of the Arizona Crop Improvement Association so as to maintain genetic identity and purity. It is essential that the best adapted variety of certified seed be used.

For Forage

For forage production, choose a barley variety that will produce the maximum amount of green-pasture forage, green chopped feed, or hay. Harlan and Vaughn are two varieties that have produced high forage yields throughout Arizona.

Bearded varieties may be objectionable as hay for horses. Although some growers prefer beardless barley for forage, available varieties tested have not yielded as well as Harlan and Vaughn.

For Grain

For grain production, choose a variety that will produce the maximum amount of high-quality grain under the existing environmental conditions. All varieties recommended for growing in Arizona are used primarily for feeding livestock and poultry.

Arivat, California Mariout, and Harlan are three varieties that have produced high grain yields in southern Arizona. Trebi has produced well from spring planting in northern Arizona. Alpine, New Mexico Winter, and Wintex are winter barleys that are suggested for use at the higher elevations where winter-hardiness is necessary.

Barley variety recommendations are summarized in Table 1, page 6.

Barley Varieties

**Certified seed of varieties (*) is produced in Arizona.*

*Arivat**

Arivat is a Coast type barley that originated as a selection from an Atlas X Vaughn cross by the late A. T. Bartel of the U. S. Department of Agriculture at the Arizona Agricultural Experiment Station. The plant is early maturing with a mid-tall straw. It has a 6-row, semi-smooth-awned head. The kernels are large with a colorless outer layer of cells (aleurone) surrounding the endosperm. This results in a light-colored seed.

Arivat has produced high grain yields under a wide range of climatic conditions. It has been one of the highest grain yielding varieties throughout Arizona and it is recommended for grain production in all areas.

*California Mariout**

California Mariout, a Coast-type barley is an introduction that originally came from the dry-hill region west of Lake Mariout in Egypt. The plant is early maturing and has a short, weak straw. It has a 6-row, rough-awned head. The kernels are large with a dark-blue aleurone layer which gives the kernels a bluish cast.

Because of its early maturity, California Mariout has produced high yields in areas where later maturing varieties may be damaged by heat and water shortage. It is tolerant to saline soil conditions and produces high grain yields from late planting in southwestern Arizona. It is recommended for grain production in areas I, II, and III.

*Blanco Mariout**

Blanco Mariout is a 6-rowed, rough-awned, Coast-type barley. It is similar to California Mariout except that the grains

of Blanco Mariout are larger and the texture softer than California Mariout. Certified seed will be available in 1962.

This variety was developed at the California Agricultural Experiment Station at Davis in cooperative work with the U. S. Department of Agriculture. It was produced from the cross male sterile Club Mariout X California Mariout using the backcross method of plant breeding. Development work was done by C. A. Suneson and R. T. Ramage.

*Harlan**

Harlan is similar to the Coast-type barley and is a selection from Composite Cross C. I. 5461. The plant is medium early in maturity and has a mid-tall straw. It has a 6-row, rough-awned head. The kernels are medium to large with a light blue aleurone layer which results in the kernels having a light bluish gray appearance.

In Arizona, Harlan has produced good grain yields and high yields of winter pasture, green chopped feed, and hay. It is recommended for grain in areas I, II, III, and IV, and throughout Arizona for forage.

Trebi

Trebi is similar to the Coast-type barley, and is a plant selection from a bulk lot of barley obtained from the south shore of the Black Sea in Asiatic Turkey. The plant is midseason in maturity with a mid-tall straw. It has a 6-row, rough-awned head. The kernels are medium large with a blue aleuron layer.

Trebi has been grown by a number of farmers at the higher elevations in Arizona. It is recommended for grain production in area V.

Vaughn

Vaughn is a Coast-type barley that originated from the cross Lion X Club Mariout. The plant is early maturing with

Table 1. Barley Variety and Date of Planting Recommendations by Climatic Areas¹

Area	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April
I			Arivat, Harlan and Vaughn	Arivat, Harlan and Vaughn	California Mariout or Blanco Mariout	California Mariout or Blanco Mariout		
II			Arivat, Harlan and Vaughn	Arivat, Harlan and Vaughn	California Mariout or Blanco Mariout	California Mariout or Blanco Mariout		
III			Arivat and Harlan	Arivat and Harlan	California Mariout or Blanco Mariout	California Mariout or Blanco Mariout		
IV		New Mexico Winter & Wintex					Arivat and Harlan	
V	Alpine and Trebi							Trebi, Arivat and Harlan

¹The recommendations for Areas IV and V should be regarded as suggestions as they are based on limited information. When barley is to be used for pasture, earlier planting dates than those suggested above should be used.

a mid-tall straw. It has a 6-row, semi-smooth-awned head. The kernels are large with a colorless aleurone layer.

Vaughn has been grown for a number of years for both grain and forage in Arizona. It is recommended for winter forage in areas I and II.

Alpine

Alpine is a winter-type barley that originated as a selection from the cross (Colorado 3063 X Winter Club) X Purdue 21. The plant is late in maturity and has a tall straw. It has a 6-row, rough-awned head. The kernels are medium large with a blue aleurone layer.

This variety is suited to the dryland and irrigated areas in the inter-mountain states. It has produced good grain yields in a limited number of tests at the higher elevations in northern Arizona. Alpine is suggested for use in area V where winter-hardiness is necessary.

Wintex

Wintex, a winter-type barley, resulted from a head selection made from a field of winter barley grown near Denton, Texas. The plant is midseason to late in maturity with a mid-tall straw. It has a 6-row, rough-awned head. The kernels are medium in size with a blue aleurone layer.

Wintex has been grown extensively in Texas, Arkansas and Mississippi. It has produced good grain yields in a limited number of tests at the higher elevations in northern Arizona. Wintex is suggested for use in areas III, IV, and V where winter-hardiness is necessary.

New Mexico Winter

New Mexico Winter is a midseason to late, mid-tall, moderately weak-strawed and moderately winter-hardy variety. New Mexico Winter is suggested for use in areas IV and V where winter-hardiness is necessary.

Seedling Development, Root Development, and Tillering of Small Grains

Germination and Early Growth

The small grains (barley, oats and wheat) have about the same general pattern of germination, root development, and tillering. Therefore, the following comments and figures will apply to all three crops.

The fibrous root system of a small grain crop consists of two parts: (1) the primary or seminal root system and (2) the permanent or adventitious root system. When a small grain seed is placed in the soil under favorable environmental conditions for germination, a small root

breaks through the root sheath (coleorhiza) which remains as a collar about the root where it breaks through the seed coat. Additional roots develop on both sides of the first root to complete the primary root system.

The primary roots make up only a very small part of the total root system, but under favorable conditions they may penetrate the soil to a depth of 8 to 12 inches. The primary roots may or may not persist throughout the entire life of the plant.

Soon after the first root appears, the coleoptile or leaf sheath starts growing in an upward direction and the first foliage

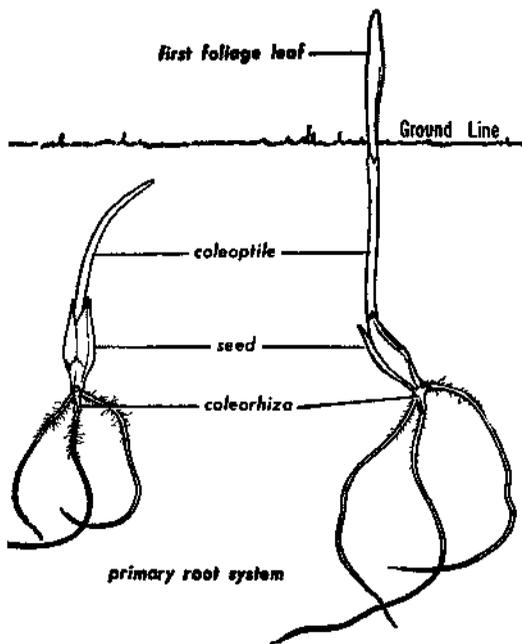


Figure 1. Diagrammatic representation of germinating barley seed and early seedling development.

Line drawings by Al Hesselberg, University of Arizona artist after line drawings by permission from *The Botany of Crop Plants*, 3rd edition by Robbins, McGraw-Hill Book Company, Inc.

leaf emerges from the top of the coleoptile. Figure 1 gives a diagrammatic presentation of the germination and early seedling development of a barley seed.

Permanent Root System

The permanent roots arise from that portion of the stem which extends from the germinating seed to the surface of the ground. The permanent root system is made up of adventitious roots which arise from the lower nodes of the main stem and its branches near the ground line.

The first permanent roots appear at the tillering node about 1 inch below the ground line (Figure 2). These roots are always produced at about the same distance below the surface of the soil, regardless of the depth at which the seed is planted.

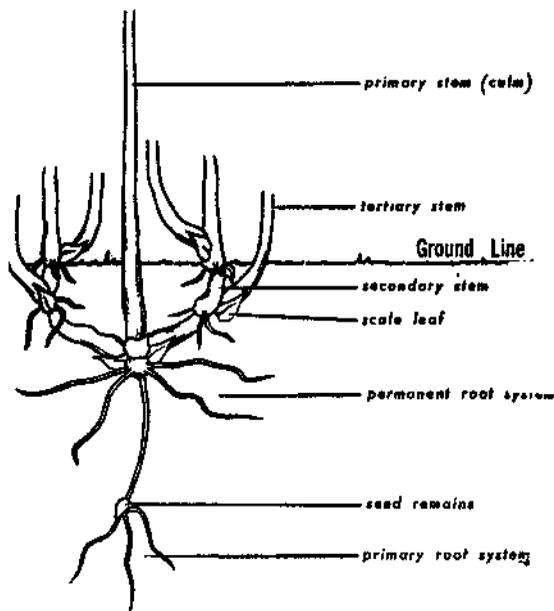


Figure 2. Diagrammatic representation of tillering in barley.

Line drawings by Al Hesselberg, University of Arizona artist after line drawings by permission from *The Botany of Crop Plants*, 3rd edition by Robbins, McGraw-Hill Book Company, Inc.

The fibrous root system of small grains consists almost entirely of permanent roots that may penetrate the soil to a depth of 5 feet (Figure 3, at right).

Tillering

The branching in small grains is called "tillering" or "stooling" and the individual branches are called "tillers." The entire mass of tillers is referred to as the "stool."

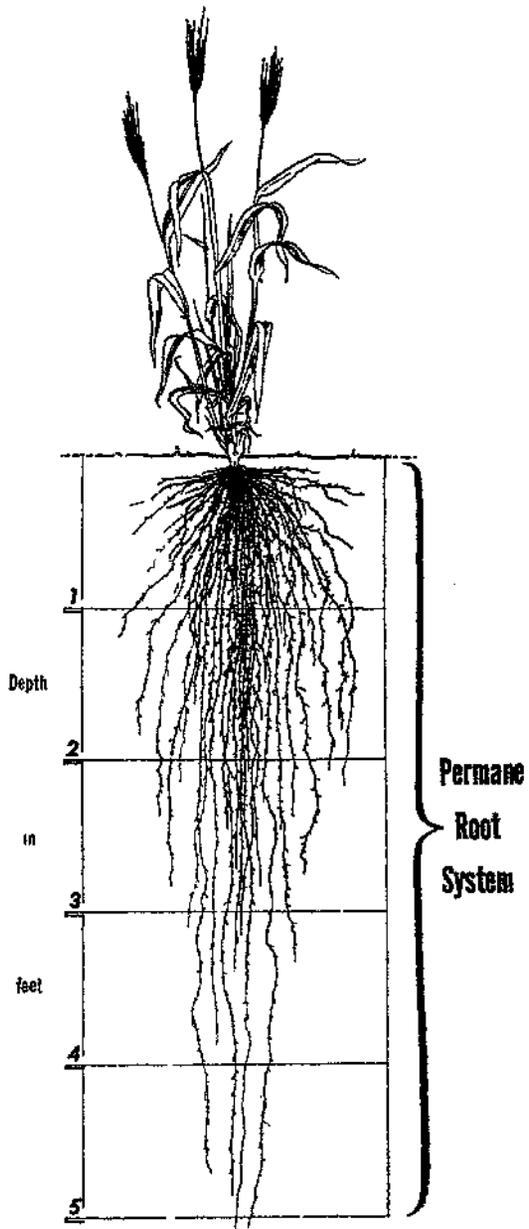
Barley and other small grains usually produce a number of stems or tillers from one seed. When environmental conditions are favorable, the primary stem (culm) from a barley seed will produce secondary stems (tillers) which in turn produce tertiary stems (Figure 2). Each primary, secondary, and tertiary stem has the potential to produce a seed head. Therefore, tillering should be encouraged whenever possible for the most efficient forage and seed production.

The tillering activity of small grains varies with the species, the variety and environmental conditions. In general, winter grains tiller more than summer grains. Early planting, low rates of seeding, large seed, moderately warm soil, and high soil fertility all promote tillering. High tillering activity also tends to decrease lodging in small grains.



Figure 3. Diagrammatic representation of the permanent root system of a mature barley plant.

Line drawings by Al Hesselberg, University of Arizona artist after line drawings by permission from The Botany of Crop Plants, 3rd edition by Robbins, McGraw-Hill Book Company, Inc.



Influence of Plant Development on Pasture Management

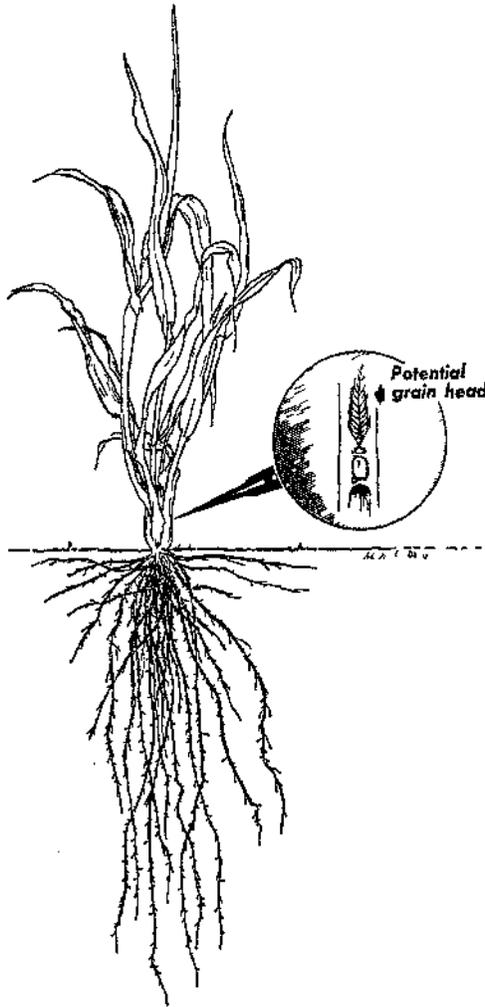


Figure 4. Diagrammatic representation of a young barley plant showing location of developing head.

Line drawings by Al Hesselberg, University of Arizona artist.

are the points on the stem from which leaves arise). The first nodes may be observed above the surface of the soil when plants are about 8 to 12 inches tall. At this time there is considerable elongation of the tissue between nodes (internodes). This is the stage of growth commonly referred to as jointing.

The potential grain producing head is located near the first node of each stem (Figure 4). When pasturing barley, or other small grains, it is essential that these undeveloped heads not be removed.

The amount of carbohydrates produced by a small grain plant is determined, in part by leaf surface. Thus when leaves are removed by pasturing too close to the soil surface, re-growth will be limited. Pasture management studies suggest that small grains should be rotationally grazed at the onset of the jointing stage of plant growth. Greatest pasture yields have been obtained when about three inches of growth remain after each grazing period.

If you desire to pasture barley early in the season and then allow the crop to produce grain, the degree of plant development will influence pasture management. The young, actively growing plants, have many nodes and internodes (nodes

Vegetative Identification

Barley plants can be distinguished in the vegetative stage from other small grains by the distinctive attachments of their leaves and stems. The principal distinguishing characteristics are the auricles and ligules.

The auricles are the lateral extensions of the leaf collar, which is the thickened, hinge-like part of the leaf serving as a joint between the leaf blade and leaf sheath. Auricles occur in pairs and pro-

ject around the stem. Barley has long, clasping auricles; wheat has shorter, hairy auricles; rye has very short auricles; and oats have no auricles.

The ligule is an outgrowth from the upper and inner side of the leaf blade where it joins the leaf sheath. Barley has a shorter, less prominent ligule than oats and wheat. The drawings in Figure 5 show the differences between the auricles and ligules on barley, oat, and wheat plants in the vegetative stage.

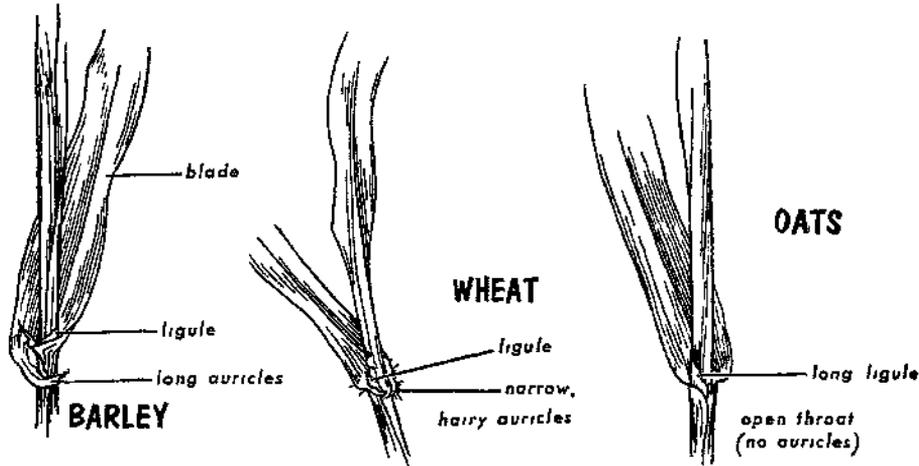


Figure 5. Diagrammatic presentation showing the distinguishing characteristics between barley, wheat, and oats, in the vegetative stage.

These illustrations were prepared by Al Hesselberg, University of Arizona artist, using living plants after line drawings by Beecher Crampton, Agronomy Department, University of California, Davis.

Seedbed Preparation

The preparation of the seedbed influences the growth of plants during the entire season. The use of a minimum number of tillage operations helps to prevent soil compaction which hinders root and water penetration.

After the soil has been plowed, it should be prepared for irrigation. When borders are to be used, border ridges must be constructed.

When properly prepared, the soil will be loose and friable. This will promote aeration, water penetration and root growth. As with other crops, the soil should not be worked when too wet or too dry.

Barley may follow cotton or sorghum in the rotation. Often the only seedbed preparation consists of disking. It is possible for barley to produce profitable yields when seeded in this manner.

Method of Planting

Planting in a dry seedbed eliminates the danger of working the land while it is too wet. However, when barley is planted and then irrigated, seedlings emerge later and weed problems are greater than when seed is placed in moist soil.

A preplanting irrigation is usually made on seedbeds which have been prepared for irrigation. The rough surface of such a seedbed is more conducive to rapid water penetration than the surface of the dry seedbed which has been completely prepared and planted. Preplanting irrigations also have the advantage of germinating weed seeds prior to the final tillage operation before planting. Seed placed in a moist seedbed is neither uncovered nor excessively covered by soil carried in the irrigation water as may occur during an irrigation after planting.

Planting in dry soil and irrigating up is usually preferred in coarse-textured soils or in fields having a great variability in soil type. This method of seeding is commonly employed where corrugations are used. Germination and emergence may be more rapid when barley is planted in coarse-textured soils when the irrigation follows seeding. When barley follows a crop such as sorghum or cotton which must be harvested late in the season, several days may be saved by planting in a dry soil and then irrigating.

Seeding with a grain drill normally gives best results. When a drill is used, the seed is placed at a uniform depth, and less seed is required to obtain a stand. The grain drill should always be used when planting in a moist seedbed. When

drilling the seed into moist soil, place the seed one to two inches below the soil surface or below the dry mulch when one exists.

The drill also may be used for seeding when the crop is to be irrigated up. Best results usually are obtained when the seed is placed on or near the surface of the soil. The action of the irrigation water moving over the soil usually results in an adequate coverage of the seed.

Broadcast seeding may be done after the seedbed has been prepared, but before irrigating. Following seeding, the area should be lightly harrowed to provide seed coverage. When the land is irrigated, surface washing of soil must be kept at a minimum.

When making a broadcast seeding after a pre-planting irrigation an extra disking is required to place the seed into moist soil. A disadvantage of this method of seeding is that some seeds placed near the surface will not have adequate moisture. Also some seed is placed very deep, making seedling emergence difficult or impossible.

Drilling or broadcasting of seed may be done across the borders or with the border. Drilling across the borders helps to smooth the border ridge, making harvesting less difficult. Also, weed problems are reduced when barley occupies the border ridges.

Barley is sometimes irrigated using corrugations. When this is to be done, the seedbed is prepared and planted. Seed coverage is obtained when the irrigation furrows are made immediately after seeding.

Date of Planting

There is some leeway in planting dates for barley since there are wide yearly seasonal variations in climate in each

area. During years having long, cool springs, late plantings have produced excellent yields. However, when warm wea-

ther comes unseasonably early in the spring, yields obtained from late plantings are usually low.

Late frosts may damage early plantings during flowering and seriously reduce grain yields. Thus, it is difficult to establish precise date of planting recommendations.

Date of planting experiments have been conducted at many locations in the state. Recommendations based upon the results obtained in these trials are given in Table 1 on page 6. Your County Agricultural Agent will be glad to give you more exact suggestions concerning the date of planting for best results in your locality.

Rate of Planting

Experimental results have indicated that a wide range of seeding rates will give similar results. The amount of seed which will give best results will depend upon the date of planting, the type of seedbed, moisture in the soil, irrigation procedure and climate.

When a drill is used, less seed is required than when seed is broadcast on the soil. In general, a poorly prepared seedbed will require more seed than one which has been well prepared. However, high seeding rates will not compensate for faulty seedbed preparation or the use of unsatisfactory cultural practices.

There are about 12,000 barley seeds per pound. When 80 pounds of seed are applied per acre, this is the equivalent of over 20 seeds per square foot. Where good seedbed conditions exist, an adequate stand may be obtained using a seeding rate of 50 pounds or less per acre.

High seeding rates frequently result in lodged grain, increasing harvest difficulty. A seeding rate of 60 to 80 pounds per acre is recommended except for late plantings. Late planted grain has a shorter period of time in which to tiller, thus slightly higher seeding rates are suggested.

Fertilization

Barley gives excellent response to nitrogen fertilization in all areas of the state. When barley is to be used for grain or hay, apply elemental nitrogen at the rate of 50 to 100 pounds per acre. Nitrogen may be applied at planting, as an early top dressing or in the irrigation water.

When barley is to be pastured or cut for green-feed, apply an additional 50 to

75 pounds of elemental nitrogen before spring growth begins. When barley follows heavily fertilized crops such as cotton, alfalfa or vegetables, less nitrogen will be required.

Barley yields may be increased by the application of phosphorous where other crops respond to phosphate fertilization. In such cases, make an application of 50 to 75 pounds of P_2O_5 per acre at planting time.

Irrigation

Proper irrigation practices must be followed to obtain high barley yields. The exact time of irrigation will vary with the soil type and climate of the area of the

state where the crop is grown. However, certain irrigation principles apply to all soils, areas and seasons.

Generally, a barley crop will require

about 4 to 5 irrigations. The total amount of water required will vary from 2 to 3 acre-feet.

The preplant irrigation should wet the soil to a depth of at least 4 to 5 feet except in shallow soil. The actual amount of water required will depend upon soil type. Fine-textured soils usually require nearly one foot of water for the preplant irrigation while only a few inches may be needed on coarse sands.

The frequency of irrigation will depend upon soil type and weather. However, if the proper water penetration is obtained in the preplanting irrigation, the next irrigation usually will be needed

at about the time the plants begin to joint. Vegetative growth is rapid and water requirement is high at this stage of plant development.

Adequate soil moisture is essential during the jointing, late boot and soft-dough stages of growth. For this reason small grains are often irrigated at these stages to insure that moisture stress does not reduce yield.

The final irrigation should be applied at such a time that it will supply sufficient moisture through the dough stage of kernel development. Additional irrigations after the hard-dough stage may actually cause yield decreases due to increased lodging.

Control of Weeds

Barley competes well with most Arizona weeds. In areas I, II, and III (page 2) barley grows when perennial weeds are dormant. When proper cultural practices are followed, it will compete with most annual weeds.

When barley is planted each year on the same field, weeds such as wild oats become increasingly troublesome. This problem is corrected by the use of a good crop rotation including crops whose cultivation schedule interferes with the growth of weeds.

Barley should not be planted in fields having severe infestations of wild oats. Such fields can be irrigated and pastured for one or two winters to reduce the amount of wild oat seed in the soil.

When barley is planted late, weed problems may be severe. Thus, the use of a proper planting date also helps in the control of weeds. Weed problems are lessened when barley is planted in moist soil under a dry mulch. When the entire area is planted, barley plants help control weeds on the border ridges. Unplanted ridges become a source of weed seed to contaminate future crops.

It is essential that clean planting seed be used. Certified seed is suggested whenever the recommended varieties are available. When weed or other crop seeds are planted, an additional source of contamination is created. The use of high quality seed is always a sound investment.

2,4-D may be used to control broad-leaved weeds in small grain. Recommendations for the use of 2,4-D are given in University of Arizona Bulletin A-1, Chemical Weed Control Recommendations for Irrigated Areas. Field ends must be cultivated or chemically treated when weed control is necessary.

After harvest, barley fields which lie idle often become weedy. Annual weeds can be controlled by mechanical means. Growth of Johnson grass and other perennial weeds is reduced when irrigations are terminated soon enough so that the soil will be dry after the grain is harvested.

Any factor which favors the growth of barley increases its ability to compete with weeds. Thus, proper planting rate and date, fertilization, irrigation, and insect and disease control are all important in an effective weed control program.

Diseases and Insects

Diseases and insect pests reduce the yield and quality of barley grain and forage. However, crop rotation, clean tillage, proper date of planting, use of disease and insect resistant varieties, and seed treatment will reduce such losses to a minimum. Seed treatment with a volatile mercury fungicide such as ceresan helps to control seed and soil-borne diseases of barley.

Yellow Dwarf

Barley Yellow Dwarf (Figure 6) was first recognized as a virus disease in Arizona in 1953. It has since been most damaging to the small grain in southern Arizona. The amount of loss depends on the stage of growth when infection occurs. If plants are infected in the seedling stage, up to 90 percent loss of yield may occur; infections after heading will only effect a 5 percent loss.

The virus may be carried to barley by several kinds of aphids which feed on wild grasses and small grains including barley. They pick up the virus from the wild grasses and carry it to the barley, then as the population grows they spread it throughout the field.

Early infections cause a severe stunting of the barley plants; the leaves will turn a golden yellow with warmer weather. Later infections will cause less stunting, but the top leaf or flag leaf usually becomes yellow and the seed, in parts of the head, will be blasted.

In southern Arizona, barley planted before October 15 or after February 1 has shown the greatest loss from yellow dwarf. Control of the grasses around barley fields will delay the early infections. Aphid control by insecticide applications has not been effective in controlling yellow dwarf.



Figure 6. Plant at left has been severely stunted by barley yellow dwarf, plant in center shows moderate stunting, and plant at right has developed normally.



Corn Leaf Aphids

The corn leaf aphid sometimes is found in damaging numbers on barley and other small grains. When present, the first injury usually will be observed before booting.

Plants in infected areas will have curled, growing leaf tips. The insects may be found feeding in the leaf whorls or on the curled leaves. When the injury increases, the tips of leaves turn brown and plants in the infected areas develop a yellowish cast.

Infestations are greatest around the edges of the field. Thus, it is best to check throughout the field before deciding upon control procedures. In some instances, the lady bug beetle or other predators may provide sufficient control. Seldom does an infestation, after heading, become serious enough to warrant controls.

Stink Bugs

Small grains planted near desert land may become infested with stink bugs.

These insects vary in color from brown to dark gray, black or green.

Stink bugs spend the winter under desert vegetation and move to grain fields in the spring. Losses in yield result from their feeding on grains which are in the milk or late dough stage of growth.

At times adults lay eggs on barley plants. These eggs appear in masses of 12 to 30 per group. Under magnification, the eggs look like small barrels and are white to orange in color. The use of chemical controls is advisable when 2 or 3 stink bugs per head are observed on most of the plants.

Use of Chemical Controls

When chemical controls are needed, refer to current published insecticide recommendations of The University of Arizona. You may get them from your local County Agricultural Agent.

Grain Harvesting and Storage

Practically all Arizona barley is harvested by combine. For safe storage of grain, harvest may begin when the moisture content has been reduced to 12 to 13 percent. When the moisture content of grain declines to 8 percent or less, harvest becomes difficult because of head shattering. Also, kernel cracking is greatly increased. The proper adjustment of the

combine will reduce harvest losses to a minimum.

Storage bins should be carefully cleaned and fumigated before the grain is placed in them. During storage, the grain should be observed to detect heating or insect infestations. When insects become a problem they may be controlled by appropriate bin fumigation.

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