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UNIVERSITY OF CALIFORNIA AGRICULTURAL EXTENSION SERVICE
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BARLEY
 Cost Analysis Work Sheets
 by

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Barley is planted on more acres of tillable land in Fresno County than any other crop. It is grown in all areas of the county. Because of the widely variable conditions under which barley is grown, no one method of soil preparation, irrigation, and management is applicable throughout the county.

Land preparation for planting will vary greatly with the crop sequence (rotation) soil type, rainfall, and terrain. On the westside of the county, large acreages are planted with a minimum of land preparation. On the eastside foothill area, barley is dry-farmed.

Varieties

Over 90% of the barley acreage in Fresno County is planted with California Mariout.

California Mariout, also called blue barley, is an early maturing variety. Its straw is short and weak. California Mariout is susceptible to all the major barley diseases prevalent in this area.

Other varieties planted are Blanco Mariout and Arivat.

Blanco Mariout is very similar in appearance, straw strength, and disease susceptibility to California Mariout, but it has white kernels.

Arivat is later maturing than the Mariouts. It is medium in height and has a stiffer straw.

In trials conducted in Fresno County, California Mariout out-yielded both Blanco Mariout and Arivat.

Planting Time and Rate

Barley is a cool weather crop. To obtain maximum yields it should be planted from the second half of November to the 15th of January.

Seeding rates of 60 to 100 lbs/A are recommended. Late plantings and broadcast seeding will require the higher rates. In pre-irrigated land when barley is drill planted early winter, 60 lbs. of seed per acre is adequate. The seed should be treated with a good fungicide. Barley can be broadcast planted by aircraft or endgate seeders; or planted with a grain drill to a depth of $\frac{1}{2}$ to $1\frac{1}{2}$ inches.

Barley - 2.

Fertilizer

Sixty to eighty pounds per acre of actual nitrogen will produce the most economical yields of barley on irrigated land. Under dry-farming 20 to 30 lbs/A. of nitrogen has given economical response.

Barley will respond to phosphorus fertilization in many areas of Fresno County. Soil analysis is the best way to determine the need for it. If need for phosphorus is established 13 to 18 lbs./A. of P (elemental phosphorus) is adequate. In most areas of Fresno County an all water soluble phosphorus fertilizer should be used.

Irrigation

The most serious limiting factor in barley production in Fresno County is lack of moisture at critical times in the development of the plant.

Barley dry-farmed is at the mercy of the elements. The field is cropped in alternate years and if rainfall or moisture conditions are favorable, yields of 1,800 to 2,500 lbs/A. can be expected. During the fallow year, the fields should be kept free of weeds to conserve moisture for the crop year.

The amount of water to use should be governed by soil type and rainfall, in areas where barley is irrigated. A pre-irrigation, wetting the soil to a depth of 4 to 5 feet, is desirable. If only one crop irrigation is planned, it should be applied at late jointing or when the plants are in the boot stage.

On heavy clay soils, growers often plant in dry soil and depend on moisture from rainfall for germination and early seedling growth before they apply the first irrigation.

Weed Control

Black Mustard, London Rocket, Wild Lettuce, Fiddleneck, Wild Radish, and Wild Oats are troublesome weeds in many areas of the county. Through proper rotation and management, weed problems can be minimized.

Herbicides are available on the market and if properly used they will effectively control, at very low costs, most of the weeds infesting barley fields in Fresno County. For broadleaf weed control, 2,4-D amine at 3/4 to 1 lb/A. or Bromoxymil 6 to 8 ounces of active chemical is recommended. For wild oat control barban (Carbyne) used at 1/4 to 1/3 lbs/A is effective. For information regarding the proper timing of the application of these herbicides, please consult a farm advisor or other technically trained agriculturists.

Insect Control

Aphid populations build up in certain areas of the county to sufficiently high levels to warrant the application of an insecticide. This cost was not included in the attached cost analysis work sheets, neither is weed control costs included because the need for it varies greatly from field to field.

Barley - 3.

Harvesting

Barley is combine harvested and in some areas in Fresno County, harvest begins the last week of May. The straw is scattered and worked into the soil. In rare instances it is baled and sold for feed or bedding.

Some growers who doublecrop corn, sorghum, or rice, following barley, burn the straw to facilitate seedbed preparation.

Cost Analysis Work Sheets

Yields, as well as cost of production of barley, will vary greatly from field to field. Land values, taxes, water and labor costs vary from one area of the county to another.

Four sample cost analysis worksheets are attached. They should be helpful in estimating needed cash and to make production cost comparisons between two or more crops. In the preparation of these cost analysis worksheets, we assumed that good management practices were followed.

IRRIGATED BARLEY
Cost Analysis Work Sheet

Sample costs to produce irrigated barley in Fresno County. Based on a yield of 4000 lbs. per acre, produced by complete tillage, pre-irrigation and one crop irrigation. Man labor @ \$1.30 per hour total and equipment operator \$1.60. Heavy tracklayer per hour cash costs \$3.80, depreciation \$1.80 and interest \$1.00. Medium wheel tractor \$1.20, 60¢ and 30¢.

	<u>Sample Costs</u>		<u>My Costs</u>	
	<u>Per Acre</u>	<u>Per Cwt.</u>	<u>Per Acre</u>	<u>Per Cwt.</u>
PRE-HARVEST CASH COSTS				
Disc plot 1 x: 1 hr. man & tracklayer	5.40			
Disc harrow 2 x: total 1 1/3 hr. man & tracklayer	1.80			
Landplane 1 x: 1/6 cost of 1/3 hr. man & tracklayer	.30			
Ditch & border: 1/8 hr. man & tracklayer	.68			
Irrigate: 1 pre & 1 crop; 1 hr. labor	1.30			
water: power for 1 1/2 ac. ft. at \$10	15.00			
Disc & harrow 1 x: 1/6 hr. man & tracklayer	.90			
Plant: seed; 100 lbs. @ \$3.50 cwt	3.50			
1/4 hr. man & wheel tractor	.70			
Fertilizer: 80 lbs. N @ 6¢ applied	4.80			
Broadleaf weed control: material	2.40			
Misc. tractor work: 1/3 hr. man & tracklayer	1.80			
County taxes: 75% of \$8.50	6.38			
Repairs to equipment except tractors	2.50			
Office, car, operating capital, ins., etc.	3.40			
Total Pre-Harvest Cash Costs	50.86	1.27		
HARVESTING COSTS				
Custom: \$4.00 ac. + 10¢ cwt. over 1st 1000 lbs.	7.00			
Hauling: \$2.00 ton	4.00			
Total Harvesting Costs	11.00	.28		
TOTAL CASH COSTS	61.86	1.55		
DEPRECIATION				
Irrigation system and well: \$240 cost				
12 yr. life 60%	12.00			
Tracklayer: 2 hrs. @ \$1.80	3.60			
Wheel tractor: 1/4 hr. @ 60¢	.15			
Equipment except tractors: \$20 cost 10 yrs.	2.00			
Total Depreciation	17.75	.44		
INTEREST ON INVESTMENT AT 6%				
Irrigation system & well: 1/2 cost \$120.00 60%	4.32			
Tracklayer: 2 hrs. @ \$1.00	2.00			
Wheel tractor: 1/4 hr. @ 30¢	.08			
Equipment except tractor: 1/2 cost \$10	.60			
Land: \$550 60%	19.80			
Total Interest on Investment	26.80	.67		
TOTAL COST OF PRODUCTION	106.41	2.66		

Sample Costs Per Cwt. at Varying Yields

Yield: Lbs. Per Acre	Average					Exceptional	
	2500	3000	3500	4000	4500	5000	
Cash Costs Per Cwt.	2.35	2.00	1.74	1.55	1.40	1.28	
Total Cost Per Cwt.	4.14	3.48	3.01	2.66	2.39	2.17	

IRRIGATED BARLEY IN DISCED COTTON LAND
Cost Analysis Work Sheet

Sample costs to produce irrigated barley in Fresno County following cotton, with minimum land preparation. Based on a yield of 3500 lbs. per acre, produced with two sprinkler irrigations. Man labor at \$1.30 per hour total and equipment operator \$1.60. Heavy tracklayer per hour cash costs \$3.80, depreciation \$1.80 and interest \$1.00. Medium wheel tractor \$1.20, 60¢ and 30¢.

	<u>Sample Costs</u>		<u>My Costs</u>	
	<u>Per Acre</u>	<u>Per Cwt.</u>	<u>Per Acre</u>	<u>Per Cwt.</u>
<u>PRE-HARVEST CASH COSTS</u>				
Disc 2 X: total 2/3 hr. man & tracklayer	3.60			
Fertilize: custom, 80 lbs. N @ 6¢ applied	4.80			
Plant: seed, 100 lbs. @ \$3.50 cwt.	3.50			
¼ hr. man & wheel tractor	.70			
Irrigate 2 X: sprinklers; labor 1 hr.	1.30			
water: power for 1 1/3 ac. ft. @ \$10	13.33			
Broadleaf weed control: material & air application	2.40			
County taxes: 50% of \$8.50	4.25			
Repairs to equipment except tractors	.60			
Misc. office, car, operating capital, insurance, etc.	2.65			
Total Pre-Harvest Cash Costs	37.13	1.06		
<u>HARVESTING COSTS</u>				
Combine: man and self-propelled combine harvester	4.75			
Hauling: farm owned trucks, total \$1.50 ton	2.63			
Total Harvesting Costs	7.38	.21		
TOTAL CASH COSTS	44.51	1.27		
<u>DEPRECIATION</u>				
Irrigation system & well: total \$240 cost				
12 yr. life, 20%	4.00			
Tracklayer: 2/3 hr. @ \$1.80	1.20			
Wheel tractor: ¼ hr. @ 60¢	.15			
Combine: \$30 cost 10 yr. life	3.00			
Other equipment: \$7.00 cost 10 yr. life	.70			
Total Depreciation	9.05	.26		
<u>INTEREST ON INVESTMENT AT 6%</u>				
Irrigation system & well: ½ cost \$120, 20%	1.44			
Tracklayer: 2/3 hr. @ \$1.00	.67			
Wheel tractor: ¼ hr. @ 30¢	.08			
Combine: ½ cost \$15	.90			
Other equipment: ½ cost \$3.50	.21			
Land: \$550, 30%	9.90			
Total Interest on Investment	13.20	.38		
TOTAL COST OF PRODUCTION	66.76	1.91		

Sample Costs Per Cwt. at Varying Yields

Yield: Lbs. Per Acre	Average					Exceptional
	2500	3000	3500	4000	4500	
Cash Costs Per Cwt.	1.75	1.47	1.27	1.12	1.01	
Total Cost Per Cwt.	2.64	2.21	1.91	1.68	1.47	

IRRIGATED BARLEY PLANTED IN COTTON STALKS
Cost Analysis Work Sheet

March 1966

Sample costs to produce barley in Fresno County with no land preparation and one irrigation following a cotton crop. Based on a yield of 3000 lbs. per acre. Man labor at \$1.30 per hour total and equipment operator \$1.60 medium wheel tractor per hour cash costs \$1.20, depreciation 60¢ and interest 30¢.

	<u>Sample Costs</u>		<u>My Costs</u>	
	<u>Per</u>	<u>Per</u>	<u>Per</u>	<u>Per</u>
	<u>Acres</u>	<u>Cwt.</u>	<u>Acres</u>	<u>Cwt.</u>
PRE-HARVEST CASH COSTS				
Fly on 100 lbs. seed into stalks; seed cost \$3.50 cwt.	3.50			
Air seeding cost \$1.15 per acre	1.15			
Shred stalks: ¼ hr. man & tractor	.70			
Irrigate: labor; 1 hr. per acre	1.30			
Water: power for 12" at \$10	10.00			
Fertilize: 60 lbs. N at 10¢	6.00			
Air application	1.35			
County taxes: 50% of \$8.50	4.25			
Repairs to equipment except tractor	.40			
Misc.: includes office, car, operating capital, insurance, etc.	2.25			
Total Pre-Harvest Costs	30.90	1.03		
HARVESTING COSTS				
Custom: \$4.00 acre + 10¢ cwt. over 1st 1000 lbs.	6.00			
Hauling: \$2.00 ton	3.00			
Total Harvesting Costs	9.00	.30		
TOTAL CASH COSTS	39.90	1.33		
DEPRECIATION				
Tractor: ¼ hr. at 60¢	.15			
Equipment except tractor	.10			
Irrig. system & well: \$240 cost, 12 yr. life, 20%	4.00			
Total Depreciation	4.25	.14		
INTEREST ON INVESTMENT AT 6%				
Tractor: ¼ hr. @ 30¢	.08			
Equipment except tractor	.05			
Irrigation system: ½ cost \$720	20%	1.44		
Land: \$550	30%	9.90		
Total Interest on Investment	11.51	.39		
TOTAL COST OF PRODUCTION	55.66	1.86		

Sample Costs of Production Per Cwt. at Varying Yields

Yield: lbs. per acre	Average				Exceptional	
	2000	2500	3000	3500	4000	4500
Cash costs per cwt.	1.89	1.56	1.33	1.17	1.05	.95
Total cost per cwt.	2.68	2.19	1.85	1.62	1.45	1.30

DRY LAND BARLEY PRODUCTION
Cost Analysis Work Sheet

March 1966

Sample costs to produce non-irrigated barley in Fresno County. Based on a yield of 1800 lbs. per acre every other year. Man labor \$1.30 per hour total and equipment operator \$1.60. Heavy tracklayer per hour cash costs \$3.80, depreciation \$1.80 and interest \$1.00. Medium wheel tractor \$1.20, 60¢ and 30¢.

	<u>Sample Costs</u>		<u>My Costs</u>	
	<u>Per Acre</u>	<u>Per Cwt.</u>	<u>Per Acre</u>	<u>Per Cwt.</u>
<u>PRE-HARVEST CASH COSTS</u>				
<u>Crop Year</u>				
Disc 2 x: total 1/3 hr. man & tracklayer	1.80			
Plant: seed; 80 lbs. @ \$3.50 cwt.	2.80			
1/4 hr. man & wheel tractor	.70			
Fertilize: material 20 lbs. N @ 12¢	2.40			
1/4 hr. man & wheel tractor	.70			
County taxes:	3.85			
Office, car, operating capital, insurance, etc.	1.20			
Repairs to equipment except tractor	.75			
<u>Fallow Year</u>				
Disc 2 x: 1/3 hr. man & tracklayer	1.80			
County taxes	3.85			
Repairs & misc. expenses	.60			
<u>Total Pre-Harvest Cash Costs</u>	<u>20.45</u>	<u>1.14</u>		
<u>HARVESTING COSTS</u>				
Custom harvest: \$5.00 acre + 10¢ cwt. over 1st 1000 lbs./A.	5.80			
Hauling: \$2.00 ton	1.80			
<u>Total Harvesting Costs</u>	<u>7.60</u>	<u>.42</u>		
<u>TOTAL CASH COSTS</u>	<u>28.05</u>	<u>1.56</u>		
<u>DEPRECIATION</u>				
Tracklayer: 2/3 hr. @ \$1.80	1.20			
Wheel tractor: 1/2 hr. @ 60¢	.30			
<u>Equipment except tractors - total</u>	<u>1.00</u>			
<u>Total Depreciation</u>	<u>2.50</u>	<u>.14</u>		
<u>INTEREST ON INVESTMENT AT 6%</u>				
Tracklayer: 2/3 hr. @ \$1.00	.67			
Wheel tractor: 1/2 hr. @ 30¢	.15			
Equipment except tractors; total	.30			
Land @ \$250	crop year	15.00		
Land @ \$250	fallow year	15.00		
<u>Total Interest on Investment</u>	<u>31.12</u>	<u>1.73</u>		
<u>TOTAL COST OF PRODUCTION</u>	<u>61.67</u>	<u>3.43</u>		

Sample Costs Per Cwt. at Varying Yields

Yield: lbs. per acre	Average				Exceptional		
	1400	1600	1800	2000	2200	2400	2600
Cash costs per cwt.	1.95	1.73	1.56	1.42	1.31	1.22	1.14
Total cost per cwt.	4.35	3.83	3.43	3.10	2.84	2.62	2.43