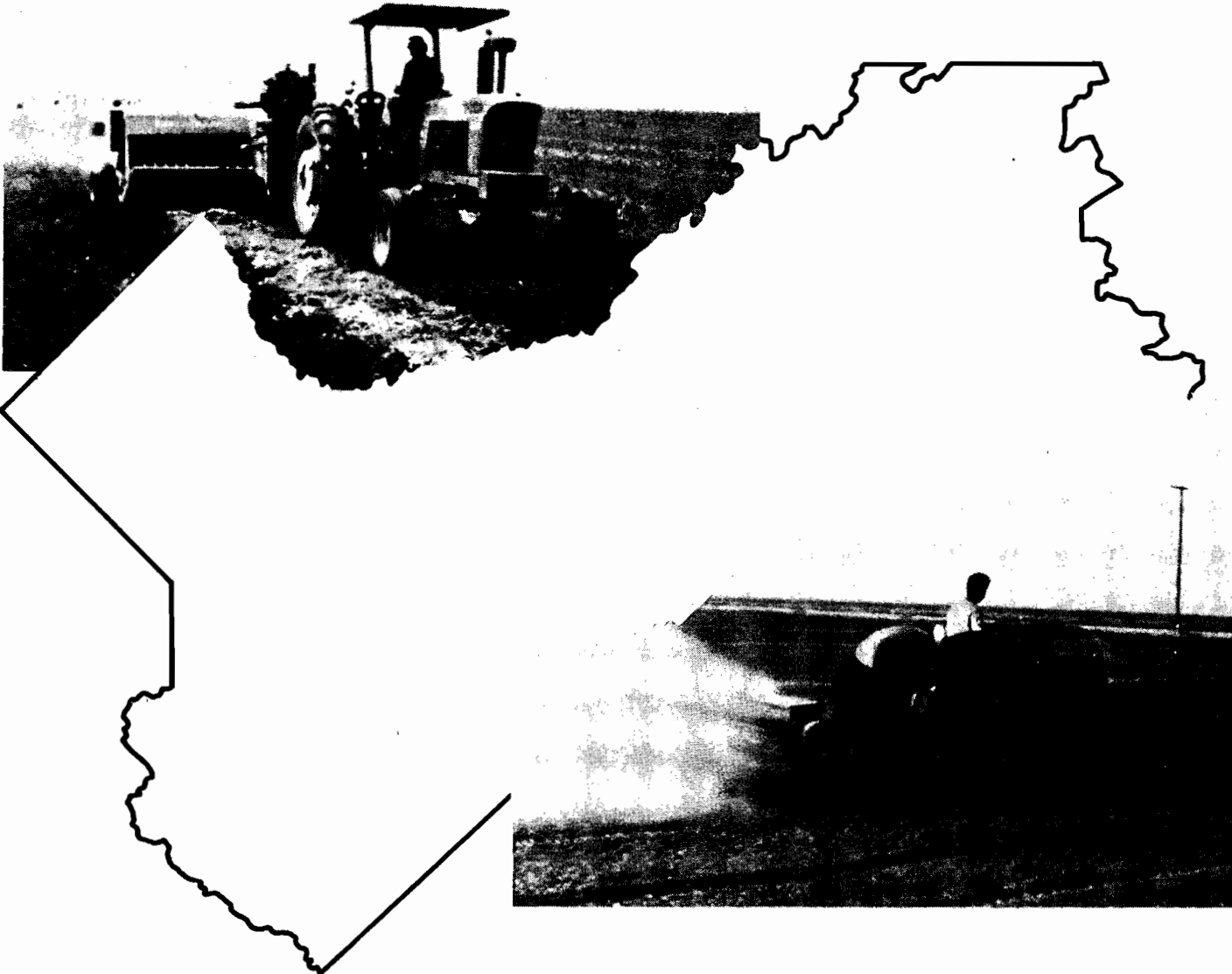


ALFALFA HAY

1979

Economics and Production in

Fresno County



ALFALFA HAY PRODUCTION AND ECONOMICS IN FRESNO COUNTY

Bob Sheesley and E. A. Yeary*

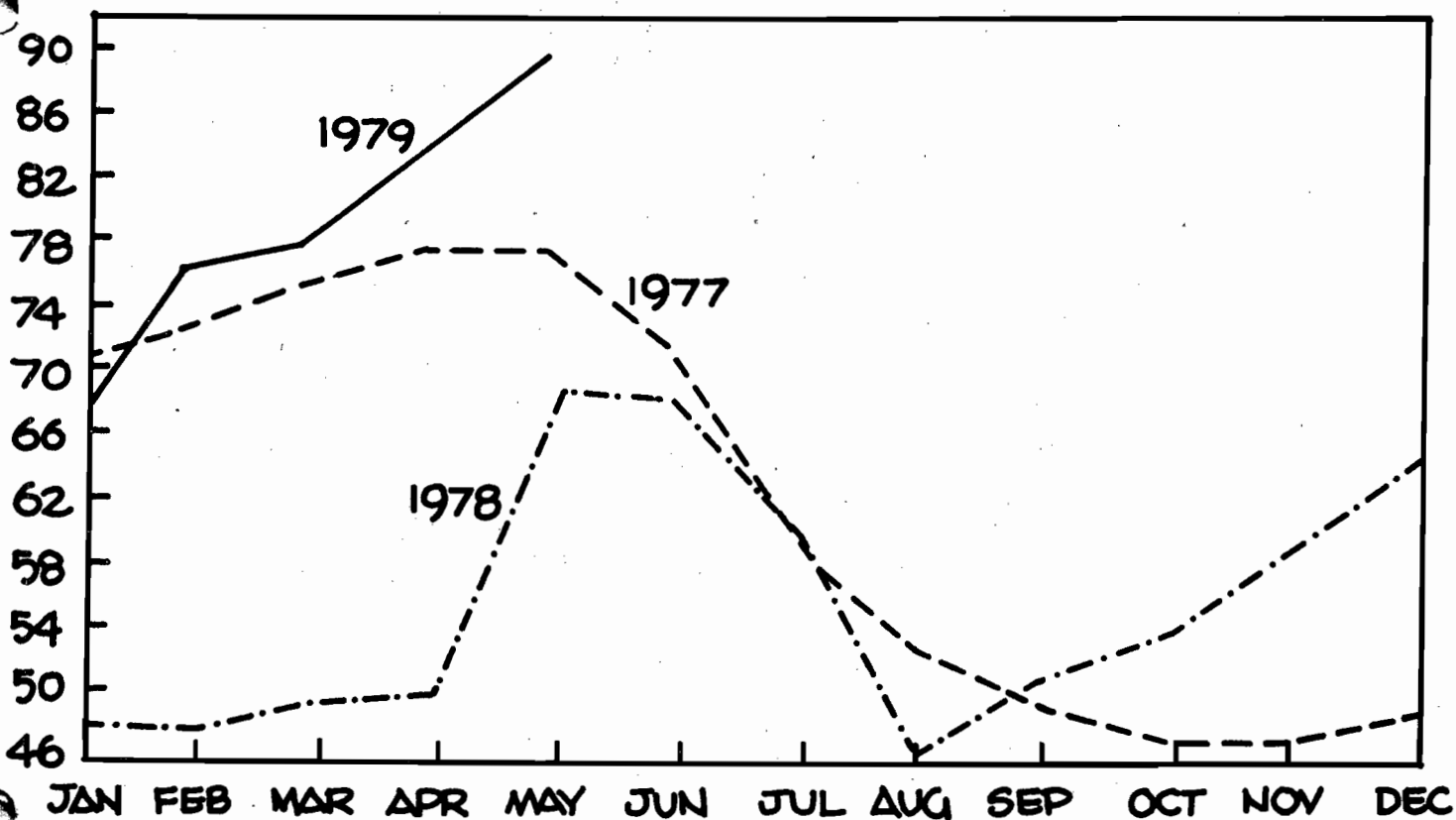
Alfalfa hay acreage in Fresno County has ranged from 85,000 to 100,000 acres in recent years. Yields for alfalfa hay in this area have averaged 7 tons per acre per season from 6 or 7 cuttings. Yields exceeding 10 tons are possible on deep loam soils under skilled management.

The alfalfa marketing outlook is good for the near future due to an increasing number of dairy animals in the San Joaquin Valley and strong markets for many alternative annual crops grown in the area.

About 70% of California's alfalfa is sold on the open market, with the remainder fed to livestock and dairy animals owned by the hay producers. Prices received by growers for U.S. #2 leafy grade baled hay, road side, near Fresno ranged between \$68 and \$89 per ton during the first five months of the 1979 growing season.

There are no acreage or production control programs that apply directly to alfalfa growing or marketing. The most recent market and price information may be obtained from the Fresno office of the Federal-State Market News Service. This office is located at 2550 Mariposa Street, Fresno, California 93721. The telephone number is 488-5022.

** Fresno-Kerman-Madera Prices to Growers
in Dollars Per Ton Baled Alfalfa Hay



* Bob Sheesley, Farm Advisor, Fresno County; E. A. Yeary, Farm Advisor Statewide.

** Average price for U.S. #2 leafy grade.
Source: Federal-State Market News Service Reports.

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NOTES ON USING COST ANALYSIS WORK SHEETS

These worksheets show an operating schedule of the most generally accepted farm practices, together with depreciation and interest costs. Perhaps their most important use is in comparing an actual or proposed budget or farming program with these sample costs. No one farm may require all of the inputs in a given year, however, or have exactly the same equipment as indicated. This emphasizes the value as a worksheet, as well as a cost guide.

If the grower owns all of the business assets outright, then interest charges that are indicated would return to him as income, or reduce the cash requirements for production accordingly.

One cost schedule cannot illustrate each farm situation. It can serve as a guide of recommended practices and sample costs, against which any actual or proposed schedule can be tested for completeness and unit cost of production.

ESTABLISHING A STAND OF ALFALFA IN FRESNO COUNTY

This worksheet was developed to show sample costs for establishing a good stand of alfalfa hay. It includes all costs involved from land preparation through seeding. Included also is the cost of fertilization for the first year's production. It does not include any other production figures.

In order to obtain high yields of good quality hay, certain factors should be considered before seeding. Some of these factors are outlined below.

Alfalfa gives maximum yields on deep loam soils. It can be grown on most soil types. Alfalfa does poorly on land that contains hardpan or an impervious layer closer to the surface than four feet. It is moderately tolerant to alkali and does poorly on high water table areas without subsurface drainage.

Ripping--Soil compacted by equipment in growing previous crops, especially cotton, develops compacted layers which restrict root growth and increases the incidence of phytophthora root rot. Ripping is needed for good production on compacted soils. Generally 24" deep is adequate to break up soils compacted by equipment traffic. Ripper shanks normally should be 18" apart in sandy loam or sandy soils.

Land Grading--Most alfalfa fields require a 0.2 slope per 100 feet of run for border irrigation. Newly leveled land should be pre-irrigated so that low and high areas can be eliminated before planting. Water should not run in the checks over eight hours. Bed planting may be advisable to establish alfalfa in heavy clay and clay loam soils by sub-irrigation.

Fertilization--Most soils in Fresno County require the addition of phosphorus for optimum alfalfa hay production. A three-year supply can be applied and lightly disced into the soil during seedbed preparation, or annual applications can be made. Some local soils also require additional sulfur for alfalfa production.

Time of Seeding--October and February are usually the best months to seed alfalfa. Fall plantings usually produce a higher yield the first year. If weeds are a serious problem, irrigating to germinate weed seed, and a light discing along with a spring seeding may be beneficial. Pre-emergence herbicides should be used if many weeds are anticipated.

Method of Seeding--Alfalfa should be uniformly covered (no deeper than $\frac{1}{2}$ "). After seeding, the field should be rolled or cultipaked to prevent moisture loss and provide protection against low temperatures. Drilled or broadcast seedings should be rolled or cultipaked. Seeding of small grain companion crops with alfalfa is not recommended unless required for protection from high winds in very sandy soils.

Rate of Seeding--Twenty pounds of seed per acre is recommended for normal seeding on well-prepared seedbeds.

Varieties--Non-dormant varieties make up the largest acreage of alfalfa hay in Fresno County. There are many new private and public varieties on the market today which look promising. Data concerning the dormancy classification of many of these varieties is available at the Farm and Home Advisors Office.

Weed Control and First Harvest--Effective pre-emergence and post-emergence herbicides are available for use in alfalfa hay fields. Clipping for weed control or first harvest should not be done until the roots of the alfalfa plants reach a 14" depth in sandy or sandy loam soils.

ESTABLISHING A STAND OF ALFALFA FOR HAY
IN FRESNO COUNTY

Cost Analysis Worksheet - 1979

Costs are based on field labor at \$4.10 per hour and equipment operator \$5.00 per hour total cost to the grower. Tractors are a rented 160 h.p. crawler and an owned 80 h.p. wheel diesel, with cash costs per hour \$4.50, depreciation \$2.00 and interest \$1.20.

Annual investment costs and real estate taxes are charged to the hay production, so are not included in the stand development costs.

Alkaline soil will require the addition of sulfur or gypsum to improve water penetration. These costs are not included in this example.

	Sample Costs Per Acre	My Costs Per Acre
Cash Costs:		
Shred previous crop residue: .25 hr. labor and wheel tractor	\$ 2.38	
Disc 2x: .25 hr. labor and wheel tractor	2.38	
Chisel: .40 hr. rented crawler tractor and chisel	18.36	
Plane: .20 hr. labor and wheel tractor	1.90	
Border preparation: .50 hr. labor and wheel tractor	4.75	
Plane between borders: .20 hr. labor and wheel tractor	1.90	
Fertilize: 44 lbs. phosphorous in phosphate form	23.40	
Application: custom bulk spreading	2.75	
Pre-irrigate: power for 1 acre ft. water at \$12.00	12.00	
Labor: 1 hour	4.10	
Disc or springtooth for seedbed preparation .15 hr. labor and wheel tractor	1.42	
Re-shape borders: .10 hr. labor and wheel tractor	.95	
Weed control - custom applied	14.50	
Plant: seed, 20 lbs. at \$2.10	42.00	
plant by airplane	2.25	
Cover seed: .10 hr. labor and wheel tractor	.95	
Repairs to equipment except tractor	10.00	
Office and business costs	8.76	
TOTAL CASH COSTS	\$154.75	
Depreciation:		
Wheel tractor 1.75 hrs. at \$2.00	3.50	
Equipment except tractor	5.50	
DEPRECIATION CHARGED TO STAND ESTABLISHMENT	9.00	
Interest on Investment at 9%:		
Wheel tractor: 1.75 hrs. at \$1.20	2.10	
Equipment except tractor	3.20	
INTEREST ON INVESTMENT CHARGED TO STAND ESTABLISHMENT	5.30	
TOTAL COST TO ESTABLISH ALFALFA STAND	\$169.05	

Feb-Mar or Sep-Nov

ALFALFA HAY PRODUCTION IN FRESNO COUNTY

Cost Analysis Worksheet - 1979

Sample costs to produce alfalfa hay in Fresno County. Field labor \$4.10 per hour and equipment operator \$5.00 per hour total costs to the grower. 80 h.p. wheel diesel tractor per hour cash costs \$4.50, depreciation \$2.00 and interest \$1.20.

Costs are based on a yield of 8½ tons per acre, with a 3 year stand life.

	<u>Sample Costs</u>		<u>My Costs</u>	
	Per Acre	Per Ton	Per Acre	Per Ton
Pre-Harvest Cash Costs:				
Irrigate 13 times: labor 8 hrs.	\$ 32.80			
4½ ft. water at \$12.00	54.00			
*Fertilize: 44 lbs. actual phosphorous	23.40			
Bulk spreading	2.75			
Weed control: herbicide and application	16.00			
Insect Control: total cost	13.00			
Taxes	11.00			
Repairs, except tractor	14.00			
Misc. labor, materials and 1 hour tractor	13.50			
Office and business costs: (6% of cash costs)	19.00			
TOTAL PRE-HARVEST CASH COSTS	\$199.45	\$23.46		
Harvest Costs:				
Cut and Swath: contract \$4.50 per ton	38.25			
Bale: contract \$9.00 per ton	76.50			
Roadside: contract \$2.50 per ton	21.25			
TOTAL HARVEST COSTS	\$136.00	\$16.00		
TOTAL CASH COSTS	\$335.45	\$39.46		
Depreciation:				
Irrigation system & equip. \$300 cost, 15 years	\$ 20.00			
Tractor: 1 hr.	2.00			
Stand: \$169.05 cost, 3 yrs.	56.35			
TOTAL DEPRECIATION	\$ 78.35	\$ 9.22		
Interest on Investment at 9%:				
Irrigation system: ½ cost, \$150	\$ 13.50			
Tractor: 1 hr.	1.20			
Stand: ½ cost \$84.53	7.61			
Land: \$2,000	180.00			
TOTAL INTEREST ON INVESTMENT	\$202.31	\$23.80		
TOTAL COST OF PRODUCTION	\$616.11	\$72.48		

No allowance has been included for the cost of management.

No income from sheep grazing has been included, although this is sometimes earned by hay growers.

*P x 2.29 = P₂O₅ (500 lbs. of single super phosphate or 218 lbs. of treble super phosphate per acre)

ALFALFA HAY PRODUCTION

Sample Costs of Production at Varying Yields - 1979

Yield: Tons Per Acre	Average				Exceptional	
	6	7	8	9	10	11
Cash Costs Per Ton	\$49.24	\$44.49	\$40.93	\$38.16	\$35.94	\$34.13
Total Costs Per Ton	\$96.02	\$84.58	\$76.01	\$69.34	\$64.01	\$59.64

Sample Costs of Production at Indicated Yields
Per Acre With Varying Water Costs

Yield: Tons Per Acre	Total Cost* of Alfalfa Hay Per Ton at the Indicated Water Cost Per Acre Foot			
	\$10.00	\$14.00	\$18.00	\$22.00
6	\$94.22	\$97.82	\$101.42	\$105.02
7	\$83.04	\$86.12	\$89.20	\$92.28
8	\$74.66	\$77.36	\$80.06	\$82.76
9	\$68.14	\$70.54	\$72.94	\$75.34
10	\$62.93	\$65.09	\$67.25	\$69.41
11	\$58.66	\$60.62	\$62.58	\$64.54

*Investment per acre in the irrigation system was assumed to be constant in this table.

ALFALFA HAY GRADE STANDARDS

The following alfalfa hay grade descriptions are derived from the OFFICIAL HAY & STRAW STANDARDS Handbook published by the United States Department of Agriculture. Grade handbooks may be obtained by writing to Agricultural Marketing Service, U.S. Department of Agriculture, Washington, D.C. 20250.

U.S. No. 1 ALFALFA HAY: May include up to 5% of other classes of hay and non-injurious foreign material such as grass, weeds, cornstalks, etc. No. 1 alfalfa hay must have 40-50% leaves (by weight) and 60-75% of green color (as compared with color conversion tables prepared by Grain Division, AMS, USDA). One-fifth of the leaves must be clinging to the stems. This grade shall not include hay in which a majority of the alfalfa stalks bear brown and/or black seed pods. Alfalfa hay exceeding these leafiness or color requirements is considered U.S. No. 1 Extra Leafy or Extra Green.

U.S. No. 2 LEAFY ALFALFA HAY: May include up to 10% of other classes of hay and non-injurious foreign material. No. 2 Leafy alfalfa hay must have 40-50% leaves and 35-60% of green color. One-fifth of the leaves must be clinging to the stems. This grade shall not include hay in which a majority of the alfalfa stalks bear brown and/or black seed pods.

U.S. No. 2 GREEN ALFALFA HAY: May include up to 10% of other classes of hay and non-injurious foreign material. No. 2 Green alfalfa hay must have 25-40% leaves and 60-70% of green color. This grade shall not include hay in which a majority of the alfalfa stalks bear brown and/or black seed pods.

(NOTE: Much of the No. 2 Green is used for milling which requires a lower moisture content than generally is found in U.S. No. 1 and U.S. No. 2 Leafy grades).

U.S. No. 2 ALFALFA HAY: May include up to 10% of other classes of hay and non-injurious foreign material. No. 2 alfalfa hay must have 25-40% of leaves and 35-60% of green color. Hay containing injurious foreign material such as mature foxtail, sandburs, poisonous plants, bronco grass, or other grasses having a sharp-pointed callus at the base of the seed, is considered to be Sample Grade. Hay not meeting minimum leafiness and color requirements of U.S. No. 2 grade may be U.S. No. 3 or Sample Grade.

University of California
Cooperative Extension Service

Farm & Home Advisors
1720 S. Maple Ave.
Fresno, CA 93702

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UC Cooperative Extension

**CO-OPERATIVE EXTENSION WORK IN AGRICULTURE AND HOME ECONOMICS, U.S. Department of Agriculture,
University of California, and County of Fresno Co-operating.**

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