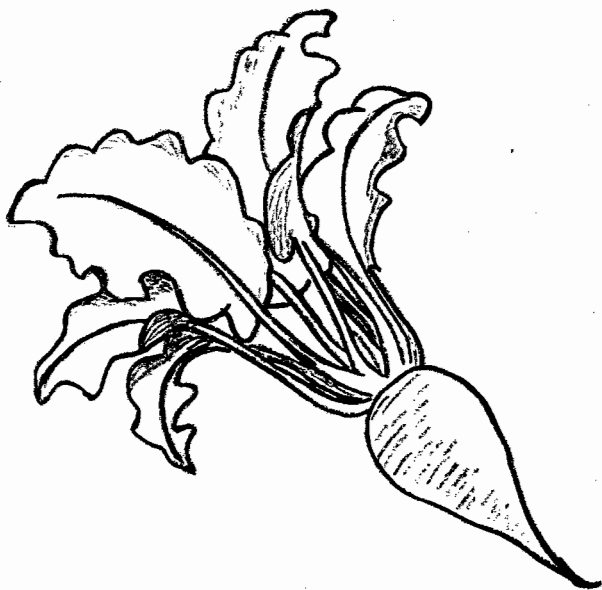


# SUGAR BEETS

## COSTS & GENERAL HINTS ON PRODUCTION



UNIVERSITY OF CALIFORNIA  
AGRICULTURAL EXTENSION SERVICE  
KERN COUNTY  
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UC Cooperative Extension

COSTS & GENERAL HINTS ON SUGAR BEET PRODUCTION  
IN  
KERN COUNTY

GEORGE V. FERRY  
FARM ADVISOR

SOIL REQUIREMENTS:

SOILS THAT ARE ADAPTED TO COTTON, ALFALFA AND OTHER DEEP ROOTED CROPS ARE SUITABLE FOR SUGAR BEETS. THE ROOTS OF SUGAR BEETS WILL PENETRATE 5 TO 6 FEET INTO THE SOIL; THEREFORE, A DEEP, WELL DRAINED SOIL IS PREFERRED. SUGAR BEETS HAVE A HIGH DEGREE OF TOLERANCE TO ALKALI SOIL CONDITIONS.

PREPARATION OF SEED BED:

THE SEED BED SHOULD BE FIRM AND FREE OF WEEDS. IT IS A GOOD PRACTICE TO PRE-IRRIGATE THE FIELD BEFORE PLANTING. SUGAR BEETS IN KERN COUNTY USUALLY ARE PLANTED ON 30 INCH SINGLE ROW BEDS; HOWEVER, SOME PLANTINGS ARE ON 40 INCH DOUBLE ROW BEDS.

PLANTING:

PLANTING DATES ARE USUALLY IN THE FALL OR EARLY IN THE YEAR. USUAL PLANTINGS OCCUR DURING JANUARY AND FEBRUARY. IF BEETS ARE PLANTED IN THE FALL, SEPTEMBER AND OCTOBER PLANTINGS ARE PREFERRED. FALL BEETS SHOULD HAVE CONSIDERABLE GROWTH BEFORE FROST OR FREEZING WEATHER OCCURS.

PLANTING SEED IS SUPPLIED BY THE SUGAR COMPANIES AT A PRICE SPECIFIED IN THE CONTRACT. IF A GROWER DECIDES TO PLANT IN THE FALL, SUGAR BEETS OF A BOLTING RESISTANT VARIETY SHOULD BE USED.

PLANTING RATES USUALLY RANGE FROM 4 TO 6 POUNDS OF SEED PER ACRE, AND SHOULD NOT BE OVER ONE INCH DEEP.

## THINNING:

BEETS GENERALLY ARE THINNED WHEN THEY HAVE FROM 2 TO 6 TRUE LEAVES. SPACING OF THE BEETS IN 30 INCH SINGLE ROW BEDS, SHOULD BE IN THE RANGE OF 160 TO 200 BEETS PER 100 FEET OF ROW. THIS WOULD BE COMPARABLE TO 6 TO 8 INCH SPACINGS. TESTS HAVE SHOWN THAT SPACINGS FROM 4 INCHES UP TO 10 INCHES HAVE LITTLE EFFECT UPON YIELDS. IF POSSIBLE, GAPS LARGER THAN 12 INCHES SHOULD BE AVOIDED. ON 40 INCH DOUBLE ROW BEDS, 140 TO 160 PLANTS PER 100 FEET OF ROW IS BEST.

FOR MECHANICAL THINNING A FULL UNIFORM STAND IS NEEDED FOR A SUCCESSFUL OPERATION.

## FERTILIZATION:

NITROGEN HAS BEEN SHOWN TO BE ONE OF THE PRINCIPAL FACTORS AFFECTING THE YIELD AND SUGAR CONTENT OF SUGAR BEETS. THE LACK OF ADEQUATE NITROGEN MAY RESULT IN LOWERED YIELDS WHILE EXCESS NITROGEN MAY BE THE REASON FOR LOW SUGAR CONTENT.

THE CROP HISTORY OF A FIELD MAY INFLUENCE THE AMOUNT OF FERTILIZER NEEDED. SUGAR BEETS IN MOST LOCATIONS WILL NEED AND USE AS MUCH OR MORE NITROGEN THAN COTTON. IN GENERAL, 100 TO 160 LBS. OF ACTUAL NITROGEN SHOULD BE APPLIED.

SOME OF OUR LIGHTER SOILS IN KERN COUNTY MAY REQUIRE AS MUCH AS 200 LBS. OF ACTUAL NITROGEN. WHERE HIGH RATES OF NITROGEN ARE USED, THE FERTILIZER SHOULD BE APPLIED EARLY ENOUGH SO THE BEETS WILL USE ALL OF THE NITROGEN PRIOR TO HARVEST IN ORDER TO INSURE ADEQUATE SUGAR PERCENTAGE IN THE BEETS.

## IRRIGATION:

SUGAR BEETS WILL USE FROM 3 TO 3-1/2 ACRE FEET OF WATER. THE NUMBER OF IRRIGATIONS WILL VARY FROM FIELD TO FIELD DEPENDING ON SOIL TYPE. HEAVIER SOILS

SAMPLE COSTS TO PRODUCE SUGAR BEETS IN KERN COUNTY

GEORGE V. FERRY\*  
YIELD - 23 TONS/ACRE

A. D. REED\*\*

OPERATION	HOURS PER ACRE	CASH AND LABOR COST PER ACRE			TOTAL	YOUR COSTS
		LABOR	FUEL AND REPAIRS-EQUIP.	MATERIAL AND OTHER		
<b>CULTURAL:</b>						
LAND PREPARATION	3.5	\$ 4.40	\$ 5.60		\$ 10.00	
LIST AND SMOOTH BEDS	.5	.65	.65		1.30	
PLANT AND FERTILIZE	.6	1.50	.75	SEED: 6 LBS. @ 57¢ NITROGEN: 15 LBS. @ 14¢	\$ 3.45 21.00	26.70
THIN: CONTRACT		12.50			12.50	
WEED: 2 TIMES - CONTRACT		8.00			8.00	
IRRIGATE: 8 TIMES	18.0	16.00		IRRIGATION WATER-POWER TO PUMP 3 ACRE FEET @ \$5.00	15.00	31.00
CULTIVATE: 3 TIMES	1.5	2.00	2.00		4.00	
SPIDER MITE CONTROL				MATERIAL AND APPLICATION	6.00	6.00
TAXES					2.00	2.00
MISCELLANEOUS		3.05	2.00		5.55	10.63
<b>TOTAL CULTURAL COSTS</b>		<b>\$48.10</b>	<b>\$11.00</b>		<b>\$53.00</b>	<b>\$112.10</b>
<b>HARVEST:</b>						
DIG: CONTRACT				23 TONS @ \$1.35	\$31.00	
HAUL				23 TONS @ 1.00	23.00	
<b>TOTAL HARVEST COSTS</b>						<b>\$ 54.00</b>
<b>TOTAL CASH AND LABOR COSTS</b>						<b>\$166.10</b>
				<b>ANNUAL COST</b>		
<u>INVESTMENT</u>	<u>PER ACRE</u>			<u>DEPRECIATION</u>	<u>INTEREST</u>	
TRACTORS	\$ 70.00			\$ 7.00	\$ 1.75	
EQUIPMENT	30.00			3.00	.75	
TOTAL	\$100.00			\$10.00	\$ 2.50	\$ 12.50
<u>RENT</u>						
20% OF 23 TONS @ \$12.25 =	\$56.40					56.40
<b>TOTAL COST PER ACRE</b>						<b>\$235.00</b>
<b>COST PER TON @ 23 TONS YIELD</b>						<b>10.25</b>

\*FARM ADVISOR

\*\*EXTENSION ECONOMIST IN FARM MANAGEMENT

THESE COSTS ARE ESTIMATED TO BE TYPICAL FOR THE KERN COUNTY SUGAR BEET GROWER. THEY ARE NOT DESIGNED TO FIT ANY SINGLE GROWER'S COST. THE COST WILL VARY UNDER DIFFERENT TYPES OF CONDITIONS. IT IS SUGGESTED THAT THE ABOVE DATA BE USED AS A GUIDE.

EFFECT OF PRICE AND YIELD ON PROFITS PER ACRE

YIELD IN TONS	PRICE/TON OF CLEAN BEETS				
	\$ 10.25	\$ 11.25	\$ 12.25	\$ 13.25	\$ 14.25
17	-\$ 35.60	-\$ 21.60	-\$ 7.60	\$ 5.40	\$ 19.40
20	- 17.60	- 1.60	14.40	30.40	46.40
23	9.40	19.40	38.40	56.40	74.40
26	18.40	38.40	59.40	80.40	100.40
29	35.40	58.40	81.40	105.40	128.40

HOLD MORE WATER THAT IS AVAILABLE TO THE PLANTS THAN DO LIGHTER SOILS. THEREFORE, HEAVIER TYPES OF SOILS MAY REQUIRE LESS NUMBERS OF IRRIGATIONS BUT WILL NEED MORE WATER EACH IRRIGATION THAN DO THE LIGHTER SOILS. SUGAR BEETS SHOULD NOT BE ALLOWED TO SUFFER FOR LACK OF AVAILABLE MOISTURE. WHEN PLANTS WILT, YIELD AND SUGAR CONTENT MAY BE REDUCED.

## INSECTS AND DISEASES:

YOUNG SUGAR BEET SEEDLINGS ARE VERY SUSCEPTIBLE TO CERTAIN FUNGI ORGANISMS THAT LIVE IN THE SOIL. THESE FUNGI ARE RESPONSIBLE FOR SUCH SEEDLING DISEASES AS DAMPING-OFF AND SEED ROT. SEED TREATMENT WITH A DESIRABLE FUNGICIDE OFFERS SOME PROTECTION AGAINST THESE ORGANISMS.

### CURLEY TOP:

THE CURLEY TOP VIRUS DISEASE IS TRANSMITTED BY THE BEET LEAF HOPPER. CURLEY TOP CAN BE SERIOUS UNLESS CURLEY TOP RESISTANT VARIETIES OF SUGAR BEETS ARE PLANTED.

### BEET MOSAIC:

BEET MOSAIC BECOMES APPARENT WITH WEATHER CONDITIONS WHICH FAVOR THE BUILD-UP OF LARGE APHID POPULATIONS. THIS DISEASE HAS NOT BEEN OF TOO MUCH ECONOMIC IMPORTANCE IN KERN COUNTY.

### VIRUS YELLOWS:

VIRUS YELLOWS HAS BECOME QUITE IMPORTANT IN KERN COUNTY SINCE 1954. THIS VIRUS IS WELL KNOWN ON THE EUROPEAN CONTINENT AND THE BRITISH ISLES.

IT IS FELT THAT EARLY INFECTION OF THE SUGAR BEET PLANTS RESULT IN A GREATER LOSS OF YIELD THAN WHEN INFECTION OCCURS IN THE LATTER PORTION OF THE GROWING SEASON. THE VIRUS IS SPREAD BY THE GREEN UC Cooperative Extension

PEACH APHID AND EXPERIMENTS HAVE SHOWN THAT CONTROL OF THE GREEN PEACH APHID IS OF DOUBTFUL VALUE.

### ROOT KNOT NEMATODE:

ROOT KNOT NEMATODE IS A SERIOUS PEST TO SUGAR BEETS. SOIL FUMIGATION WILL OFFER GOOD PROTECTION. A GROWER SHOULD NOT PLANT BEETS ON KNOWN NEMATODE INFESTED LAND.

INSECTS ARE NOT TOO GREAT AN ECONOMIC PROBLEM IN SUGAR BEETS. SPIDER MITES MAY BECOME A PROBLEM.

### HARVEST:

MOST SUGAR BEETS ARE HARVESTED BY CONTRACT WITH CUSTOM OPERATORS WHO FURNISH THEIR OWN EQUIPMENT.