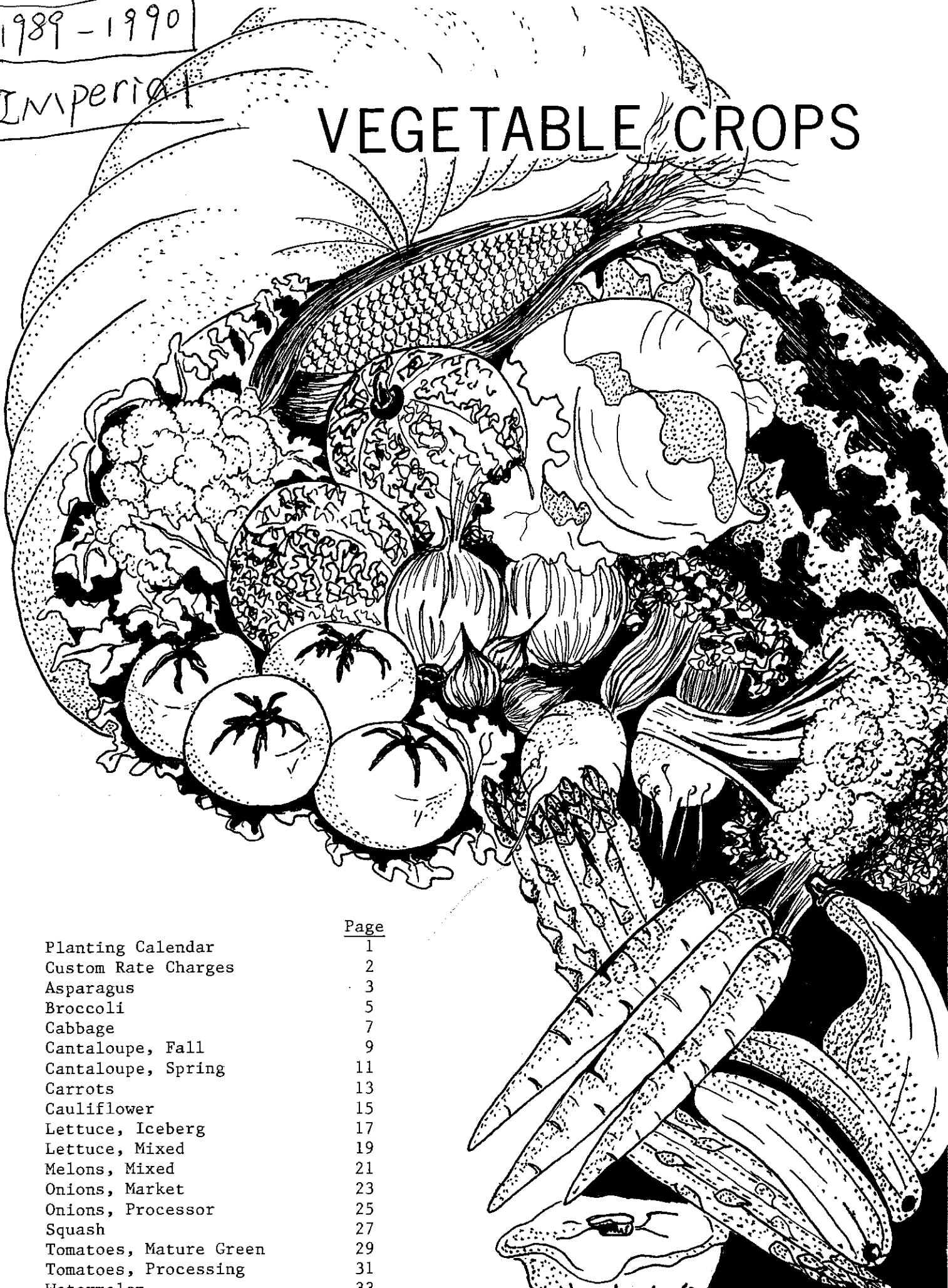


1989-1990

Imperial

# VEGETABLE CROPS



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GUIDELINES TO PRODUCTION COSTS AND PRACTICES  
IMPERIAL COUNTY CROPS, CIRCULAR 104  
 1989 - 1990

CUSTOM RATE CHARGES

<u>HEAVY TRACTOR WORK</u>	<u>PRICE/ACRE</u>
Plow	\$ 24.75
Subsoil 2nd Gear	29.25
Disc, Regular	9.50
Disc, Stubble	18.25
Float	8.25
Triplane	8.75
List, Regular	11.50
List, and Rerun 80" Melon Beds	22.00
Reshape 80" Melon Beds	10.00
Landplane	10.00
Chisel	20.75
 <u>PLANTING AND CULTIVATING</u>	
Plant and Shape Melon Beds	16.75
Precision Plant 42" Beds	14.50
Plant Carrots	13.75
Plant Onions	16.75
Cultivate 4-Row 42" Beds	10.75
Cultivate Melon Beds	14.00
Spike and Furrow Out (2 row)	10.50
Lilliston	9.50
Furrow out alone	8.00
Move N-Side 80" Beds for Irrigation	9.50
 <u>INCORPORATING, BORDER AND BED WORK</u>	
Power Incorporate herbicides	20.25
Border, Cross checks and Break Borders	15.00
Bust Melon Beds	9.00
Roll Beds	5.00
 <u>FERTILIZER APPLICATION</u>	
Broadcast Fertilizer	6.00
Inject Fertilizer (Flat)	9.00
Fertilize and Furrow Out 42" Beds	10.50
Fertilize and Furrow Out 80" Beds	10.50
 <u>IRRIGATION</u>	
Custom Sprinkle	135.00-145.00
 <u>MISCELLANEOUS</u>	
Motor Grader/Hour	42.75
Chop Broccoli, Corn Stalks, Etc.	10.00
Water truck/Hour	34.00
Cultipacker	6.00
Ground Spray Pesticides (4 Row)	7.00
Aerial Spray 5 Gal. (Insecticides)	4.50
Aerial Spray 10 Gal. (Fungicides)	5.00

**ASPARAGUS CULTURE**  
1989-1990

<u>YEAR</u>	<u>ACRES</u>	<u>YIELD/ACRE (15# CARTONS)</u>	<u>VALUE/ACRE</u>
1988	3935	257	\$3973
1987	3821	236	3357
1986	3527	214	2728
1985	2523	174	2570
1984	2127	146	2078

**PLANTING:** Asparagus may be established by three methods, direct seed, transplants, or crowns. Costs are projected using 10 week old transplants as this method is becoming more popular, despite higher costs. Transplants can be planted anytime during the year, but October through March is recommended. The distance between planting bed centers varies from 40 - 60 inches. There are normally 2 rows per bed for a plant population from 17-20,000 plants per acre (60" bed).

**VARIETIES:** The main varieties grown are "UC Hybrid 157", "Brock" selections, and Hybrid "Ida Lea". Seed cost is roughly \$200/lb. for all varieties.

**SOILS:** Well-drained sandy loams and loams are best for asparagus.

**IRRIGATION:** Timing and method of application are very important during harvest season. Irrigate every other row during cutting to maintain even production. Over 15 irrigations per year are not unusual. Irrigation interval during the summer is from 10 to 15 days.

**FERTILIZERS:** Annually from 100 to 200 pounds of phosphate and 200 to 400 pounds of nitrogen are used. All of the phosphate and at least one-third of the nitrogen is applied in winter before the cutting season. The remaining nitrogen is applied during and after the harvest season.

**PEST CONTROL:** Weeds can become a serious problem in established asparagus. After the fern is chopped and burned and before harvest begins, a preemergence herbicide should be applied. During the harvest period, spot treatments with a herbicide may be necessary. The application of a herbicide after cutting and before fern regrowth is commonly applied. Weeds in direct seeded asparagus are a serious problem.

Western yellow striped armyworm, beet armyworm, and bean thrips have been traditional pests requiring several insecticide treatments annually. The European asparagus aphid is a serious new pest requiring several additional insecticide treatments. Asparagus miner may periodically need to be treated. Asparagus rust and Cercospora stem and leafspot may require control in some years especially on new plantings. Consult your farm advisors for list of both herbicides and insecticides.

**HARVESTING:** The fern is either chopped or windrowed with a swather and burned in late November to early December. Afterward the planting beds are reworked, shaped, fertilized, and irrigated prior to the start of harvest.

Spears are hand cut from mid-January through mid-April. Overcutting will lead to a decline in production and small spears. Harvest begins the second year, but should be limited in time (2-4 weeks) and to the most vigorous plantings. During the third year of growth, cutting may be continued the full season--about 60 days. Spears are cut at an angle just below the soil surface with an asparagus knife. They are cut every two or three days early in the season, but during warm weather the field will be cut each day. The harvested spears are hauled to sheds for grading, trimming, packing, and cooling. About 30 percent of the harvested spears are shipped in 30 pound pyramid crates and 70 percent shipped in 15 pound cartons.

## Asparagus Projected Production Costs 1989-1990

Mechanical operations at custom rates. Hand labor at \$5.75 per hour (\$4.50 plus Social Security, unemployment insurance, transportation, supervision and fringe benefits)

Yield--175-30-lb. crates or 350 15-lb. cartons

OPERATION	CUSTOM RATE	MATERIALS		HAND LABOR--		COSTS Per Acre
		Type	Cost	Hours	Dollars	
<b>LAND PREPARATION</b>						
Plow	24.75					24.75
Disc 4x	9.50					38.00
Landplane 2x	10.00					20.00
Border, cross check & break borders	15.00					15.00
Flood		Water 1/2 ac/ft	5.50	1	5.75	11.25
Float	8.25					8.25
Fertilize	6.00	300# - 11-52-0	40.50			46.50
List - inject	12.00	80# N @ .31	24.80			36.80
Shape beds	14.00					14.00
<b>TOTAL LAND PREPARATION</b>						<b>214.55</b>
<b>GROWING PERIOD</b>						
Tranplant		18,000 plants	700.00	36	207.00	907.00
Sprinkler irrigate						145.00
Fertilize 2x	10.50	200# N @ .31	62.00			83.00
Irrigate 8x		3 ac. ft.	33.00	6	34.50	67.50
Hand weed				12	69.00	69.00
Insect control 5x	5.00	Insecticides	33.25			58.25
Lilliston 1x	9.50					9.50
Cultivate 2x	14.00					28.00
<b>TOTAL GROWING PERIOD COSTS (FIRST YEAR)</b>						<b>1367.25</b>
<b>GROWING PERIOD &amp; LAND PREPARATION COSTS (FIRST YEAR)</b>						<b>1581.80</b>
Land Rent (net acres)						250.00
Cash Overhead----		12% of preharvest costs & land rent				219.82
<b>TOTAL FIRST YEAR COSTS</b>						<b>2051.62</b>
<b>ANNUAL COSTS ( 10 YEAR LIFE )</b>						
Chop or swath fern 1x	18.00					18.00
Lillston 2X	9.50					19.00
Cultivate 2x	12.00					24.00
Rotovate-shape beds 1x	18.00					18.00
Fertilize 2x	10.50	400# N @ .31	124.00			145.00
Irrigate 15x		6 ac.ft.	66.00	10	57.50	123.50
Hand weed				6	34.50	34.50
Herbicide 1x	8.00	Herbicide	10.95			18.95
Insect control 5x	5.00	Insecticide	33.25			58.25
<b>TOTAL ANNUAL COSTS</b>						<b>459.20</b>
<b>GROWING PERIOD COSTS</b>						
Land Rent						250.00
Overhead		12% land rent and preharvest costs				85.10
Amortization		10% of first year costs(excluding land rent & overhead)				205.16
<b>TOTAL PREHARVEST COSTS</b>						<b>999.47</b>
<b>HARVEST COSTS</b>						
Cut, haul, pack and sell		350-15# ctns	10.00 per ctn			3500.00
<b>TOTAL ALL COSTS</b>						<b>4499.47</b>

### PROJECTED INCOME ABOVE COSTS

		price/15# carton				Breakeven \$/carton
		10.50	12.50	14.50	16.50	
Cartons	300	-849	-249	351	951	13.33
	325	-837	-187	463	1113	13.08
per	350	-824	-124	576	1276	12.86
acre	375	-812	-62	688	1438	12.67
	400	-799	1	801	1601	12.50

**BROCCOLI CULTURE**  
1989-1990

<u>YEAR</u>	<u>ACRES</u>	<u>YIELD/ACRE (CARTONS)</u>	<u>VALUE/ACRE</u>
1988	9250	437	\$ 3059
1987	7874	427	2493
1986	7390	359	2106
1985	5795	466	2978
1984	4994	340	2801

PLANTING DATES: Broccoli is normally planted from August 25 - November 15. Double-row 42 inch beds are used to grow the crop. Harvesting begins November 25 and continues through March 15. Broccoli will germinate at temperatures of 40-95°F.

VARIETIES: "Green Duke", "Pirate", "Emperor", "NS 649", "Vantage", "Ninja", "Packman" and "Cruiser" are the major varieties grown. All are hybrids. The seed is planted 1/8 - 1/4 inch deep at 2 - 3 inch spacing early season then thinned to 5 - 8 inches between plants. Later most growers plant to a stand without thinning, especially in cool weather.

SOILS: Well-drained soils are preferred, although broccoli may be grown on a wide range of soil textures. Broccoli has greater salt tolerance than does lettuce, carrots or onions.

IRRIGATION: Broccoli is irrigated 6 to 8 times during the season. Sprinkler irrigation is normally used for stand establishment.

FERTILIZERS: Four hundred fifty pounds of 11-52-0 are normally broadcast prior to listing the beds. About 80 pounds of nitrogen are applied in a single sidedress application. Additional nitrogen is applied water-run.

PEST CONTROL: Several herbicides are available for application preplant. Consult your weed control farm advisor for further information.

Cabbage loopers, armyworms, salt-marsh caterpillars, cutworms, sugarbeet nematodes, flea beetles and aphids can cause extensive damage unless controlled. Downy mildew often attacks foliage and heads. For the latest information on pest control along with precautions on use of pesticides, consult your farm advisor.

HARVESTING: Fields are harvested twice and sometimes three times. Broccoli heads are hand cut and placed on the table of a field harvesting machine. Two to four heads are trimmed to an 8 inch cut and secured by a rubber band. The broccoli is packed in 22 pound, waxed-fiberboard cartons containing 14-18 bunches. Broccoli requires rapid cooling to insure quality. Liquid icing is the standard cooling method. Cooling and palletizing are charged to the buyer.

## Broccoli Projected Production Costs 1989-1990

Mechanical operations at custom rates. Hand labor at \$5.75 per hour (\$4.50 plus Social Security, unemployment insurance, transportation, supervision and fringe benefits)

Yield--500 26-lb. cartons

85-110 days to maturity.

OPERATION	CUSTOM RATE	MATERIALS		HAND LABOR--		COSTS Per Acre
		Type	Cost	Hours	Dollars	
<b>LAND PREPARATION</b>						
Stubble disc	18.25					18.25
Subsoil	29.25					29.25
Disc 1x	9.50					9.50
Landplane 2x	10.00					20.00
Border, cross check & break borders	15.00					20.00
Flood		Water 1/2 ac/ft	5.50	1	5.75	11.25
Disc 2x	9.50					19.00
Fertilize	6.00	450# -- 11-52-0	61.00			67.00
Triplane 1x	8.75					8.75
List	11.50					11.50
<b>TOTAL LAND PREPARATION</b>						<b>229.50</b>
<b>GROWING PERIOD</b>						
Precision plant	14.50	Hybrid seed-1.5# @	150.00/#			239.50
Sprinkler irrigate						135.00
Spray herbicide	8.00	Herbicide	33.75			41.75
Thin				8	46.00	46.00
Cultivate 3x	10.75					32.25
Fertilize & furrow out 1x	10.00	80# N @ .31	24.80			34.80
Water-run fertilizer		40# N @ .31	12.40			12.40
Hand weed				4	23.00	23.00
Irrigate 8x		4 1/2 ac/ft	49.50	8	46.00	95.50
Insect Control 5x	5.00	Insecticides	42.50			67.50
Disease Control 5x	6.00	Fungicide	18.75			48.75
Chop stalks	10.00					10.00
<b>TOTAL GROWING PERIOD COSTS</b>						<b>786.45</b>
<b>GROWING PERIOD &amp; LAND PREPARATION COSTS</b>						<b>1015.95</b>
Land Rent (net acres)						200.00
Cash Overhead----		12% of preharvest costs & land rent				145.91
<b>TOTAL PREHARVEST COSTS</b>						<b>1361.86</b>
<b>Harvest (field pack)</b>						
Custom harvest, pack, sell and haul to cooler		500	26 lb cartons @	3.50/carton		1750.00
<b>TOTAL ALL COSTS</b>						<b>3111.86</b>

### PROJECTED INCOME ABOVE COSTS (PER ACRE)

		price/carton					Breakeven \$/carton
		5.00	6.00	7.00	8.00	9.00	
Cartons	300	-912	-612	-312	-12	288	8.04
per	400	-762	-362	38	438	838	6.90
acre	500	-612	-112	388	888	1388	6.22
	600	-462	138	738	1338	1938	5.77
	700	-312	388	1088	1788	2488	5.45

CABBAGE CULTURE

1989-1990

<u>YEAR</u>	<u>ACRES</u>	<u>YIELD/ACRE (CARTONS)</u>	<u>VALUE/ACRE</u>
1988	840	546	\$2527
1987	708	394	1249
1986	519	432	1844
1985	915	444	2085
1984	353	599	10326

PLANTING DATES: Cabbage is planted from Mid-September through October. Harvesting begins in December and continues through February. The market for local cabbage depends upon the volume of the cabbage harvested in coastal California and Texas. Oversupply depresses prices rapidly to the point where harvesting is impractical; low supplies, however, can create windfall profits. Cabbage is a very high risk crop!

VARIETIES: The standard green variety is "Headstart". "Charmant" is also grown. "Rubyball" is the standard hybrid red variety. Open pollinated "Red Meteor" is an alternate choice.

PLANTING & SPACING: Standard double-row 42-inch beds are used. The seed is planted with a precision planter at 2 inch spacing in-row at a seeding depth of 1/4 inch. The rows are 13 inches apart. When the plants have 2-3 true leaves, the seedlings are thinned to 12 inches apart.

IRRIGATION: Sprinkler irrigation is used to germinate the crop. Once the seedlings have emerged, the field is furrow irrigated. Cabbage grows well on medium and moderately heavy soil.

FERTILIZERS: Four hundred fifty pounds of 11-52-0 broadcast prior to listing is standard practice. Sidedress applications of nitrogen at 60-80 lbs. N/acre are common. Ammonium nitrate or UAN32 solutions are often used.

PEST CONTROL: Watch for crickets, cutworms, flea beetles, salt-marsh caterpillars, aphids, thrips, and cabbage looper. Once the insect burrows into the heads, chemical control will be nearly impossible. Cabbage should not follow sugar beets due to possible cyst nematode infection. Downy mildew may require control in some years. For the latest information on pest control consult your farm advisor.

HARVESTING: Fields are hand harvested and packed 24 heads per 50 pound in bulge packed cartons. The average yield varies according to price, but it may reach 1000 cartons per acre. Normally yield are low due to lack of sales. Cooling and palletizing are paid by the receiver.



## Cabbage Projected Production Costs 1989-1990

Mechanical operation at custom rates. Hand labor at \$5.75 per hour (\$4.50 plus Social Security, unemployment insurance, transportation, supervision and fringe benefits).

Yield--500 cartons per acre 50 lbs. per carton 100-120 days to maturity. Headstart variety

OPERATION	CUSTOM RATE	MATERIALS		HAND LABOR		COSTS Per Acre
		Type	Cost	Hours	Dollars	
<b>LAND PREPARATION</b>						
Stubble disc	18.25					18.25
Subsoil	29.25					29.25
Disc 1x	9.50					9.50
Landplane 2x	10.00					20.00
Border, cross check & break borders	15.00					15.00
Flood		Water 1/2 ac/ft	5.50	1	5.75	11.25
Fertilize	6.00	450# 11-52-0	61.00			67.00
Disc 2x	9.50					19.00
Triplane 1x	8.75					8.75
List	11.50					11.50
<b>TOTAL LAND PREPARATION</b>						<b>209.50</b>
<b>GROWING PERIOD</b>						
Precision plant	14.50	Seed @ 3" spacing	150.00			164.50
Spray herbicide	8.00	Herbicide	33.75			41.75
Sprinkler irrigate						135.00
Thin				10	57.50	57.50
Cultivate 3x	9.75					29.25
Fertilize & furrow out 2x	10.50	120# N @ .31	37.20			58.20
Water-run fertilizer		60 # N @ .31	18.60			18.60
Hand weed 1x				12	69.00	69.00
Irrigate 6x		Water 3 1/2 ac/ft	38.50	7	40.25	78.75
Insect control 7x	5.00	Insecticides	59.50			94.50
Disease control 1x	5.00	Fungicides	7.00			12.00
Stubble disc 1x	18.25					18.25
<b>TOTAL GROWING PERIOD</b>						<b>612.80</b>
<b>GROWING PERIOD &amp; LAND PREPARATION COSTS</b>						<b>822.30</b>
Land Rent (net acres)						200.00
Cash Overhead-----		12% of preharvest costs & land rent				122.68
<b>TOTAL PREHARVEST COSTS</b>						<b>1144.98</b>
<b>HARVEST COSTS</b>						
Custom harvest: cut, pack, and haul		500 cartons @	3.40 /ctn.			1700.00
<b>TOTAL ALL COSTS</b>						<b>2844.98</b>

### PROJECTED INCOME ABOVE COSTS (PER ACRE)

		price/ 50 lb. carton					Breakeven \$/carton
		4.00	5.00	6.00	7.00	8.00	
Cartons	500	-845	-345	155	655	1155	5.69
	600	-785	-185	415	1015	1615	5.31
per	700	-725	-25	675	1375	2075	5.04
acre	800	-665	135	935	1735	2535	4.83
	900	-605	295	1195	2095	2995	4.67

**FALL CANTALOUPE CULTURE**  
1989-1990

<u>YEAR</u>	<u>ACRES</u>	<u>YIELD/ACRE (CARTONS)</u>	<u>VALUE/ACRE</u>
1988	9556	335	\$1562
1987	9168	284	1310
1986	10350	183	944
1985	7243	266	1413
1984	4536	430	2324

**PLANTING DATES:** The fall crop is generally planted during the last two weeks of July through the first two weeks in August for harvest in Mid-October until frost. The melons are planted on flat beds to minimize excessive heat to the seedlines.

**VARIETIES:** "Topmark" is a popular open pollinated variety. "Topscore", "Easyrider", "Aragon", "Mission", Highline" and "Caravelle" are hybrid varieties which may be used.

**SOILS:** Well-drained medium-textured soils are preferred. Fall melons are planted on alternate N-S forty-inch beds. Later in the season, the beds are widened to 80 inches by splitting the off-beds.

**IRRIGATION:** After planting, the beds are subbed past the seedline. Sprinkler irrigation is occasionally used to germinate the crop at a cost of \$135/acre. The last irrigation is scheduled about one week prior to harvest. During this time, excessive moisture may increase ground spotting, rotted and soft fruit.

**FERTILIZERS:** Three hundred pounds of 11-52-0 may be applied before listing (as needed). Sixty to eighty pounds of nitrogen are sidedressed in one application. Fall melons tend to grow larger than the spring planted crop. Size is controlled by spacing, nitrogen fertilizer and irrigation practice. Some growers apply the preplant fertilizer as liquid ammonium phosphate (10-34-0) or phosphoric acid (0-52-0) injected next to the seedlines.

**POLLINATION:** At least one bee hive per acre is recommended. Some growers use 1 1/2 hives per acre. The bees should be distributed on at least two sides of a 40 acre field.

**PEST CONTROL:** Most growers rely solely on cultivation and hoeing for weed control.

Fall cantaloupes are subject to fewer insect problems than spring melons. Nematodes, cutworms, aphids, mites, loopers, leafhoppers, leafminers, ground beetles, crickets, infectious yellows, fusarium fruit rot, sudden wilt and powdery mildew may be problems. Consult your farm advisor for pest control information.

**HARVESTING:** Fall cantaloupes are hand harvested in October and November. The fruit are picked at the full slip stage. Field packing is the standard practice. Melons are sorted and graded into cartons holding 9, 12, 18, or 23 melons. The crates are forced-air cooled prior to shipment. Cooling and palletizing are paid by the receiver.

## Fall Cantaloupes Projected Production Costs 1989-1990

Mechanical operations at custom rates. Hand labor at \$5.75 per hour (\$4.50 plus Social Security, unemployment insurance, transportation, supervision and fringe benefits).  
Yield--350 cartons per acre. 85-90 days to maturity. Topmark variety

OPERATION	CUSTOM RATE	MATERIALS		HAND LABOR		COSTS Per Acre
		Type	Cost	Hours	Dollars	
<b>LAND PREPARATION</b>						
Stubble disc 1x	18.25					18.25
Subsoil 1x	29.25					29.25
Disc 1x	9.50					9.50
Landplane 2x	10.00					20.00
Border, cross check & break borders	15.00					15.00
Flood		Water 1/2 ac/ft	5.50	1	5.75	11.25
Fertilize	4.50	300# 11-52-0	40.50			45.00
Disc 2x	9.50					19.00
Triplane 1x	8.75					8.75
List flat beds	11.50					11.50
<b>TOTAL LAND PREPARATION COSTS</b>						<b>169.25</b>
<b>GROWING PERIOD</b>						
Plant & shape	12.00	Seed 1 1/2# @ 6.50	9.75			21.75
Thin				5	28.75	28.75
Cultivate and reshape 2x	18.00					36.00
Fertilize & furrow out 1x	10.50	60# N @.31	18.60			29.10
Pollination		Hives 1 1/2 @ 18.00	27.00			27.00
Hand weed 1x				6	34.50	34.50
Irrigate 3x		Water 2 ac/ft	22.00	8	46.00	68.00
Water run fertilizer		60# N @ .31	18.60			18.60
Insect control 4x	4.50	Insecticides	36.00			54.00
Disease control 2x	5.00	Fungicides	14.50			24.50
Disc out beds	9.50					9.50
<b>TOTAL GROWING PERIOD</b>						<b>351.70</b>
<b>GROWING PERIOD &amp; LAND PREPARATION COSTS</b>						<b>520.95</b>
Land Rent (net acres)						175.00
Cash Overhead-----		12% of Preharvest costs & land rent				83.51
<b>TOTAL PREHARVEST COSTS</b>						<b>779.46</b>
<b>HARVEST (Field pack)</b>						
Pick, pack, haul and sell		350 cartons @	2.70	per carton		945.00
<b>TOTAL ALL COSTS</b>						<b>1724.46</b>

### PROJECTED INCOME ABOVE COSTS (PER ACRE)

		price/carton					Breakeven \$/carton
		4.00	5.00	6.00	7.00	8.00	
Cartons	300	-389	-89	211	511	811	5.30
	350	-324	26	376	726	1076	4.93
per	400	-259	141	541	941	1341	4.65
acre	450	-194	256	706	1156	1606	4.43
	500	-129	371	871	1371	1871	4.26

**SPRING CANTALOUPE CULTURE**  
1989-1990

<u>YEAR</u>	<u>ACRES</u>	<u>YIELD/ACRE (CARTONS)</u>	<u>VALUE/ACRE</u>
1988	20517	264	\$ 2401
1987	18935	485	2789
1986	17324	347	1884
1985	16147	262	1382
1984	13605	270	1580

**PLANTING DATES:** Cantaloupes are planted from Mid-January through Mid-March. Harvesting begins in May and continues through early July.

**VARIETIES AND PLANTING:** Nearly all of the acreage is planted to hybrid varieties such as "Topscore", "Easyrider", "Aragon", "Mission", "Laguna", "Caravelle" and "Highline". The seed is planted 1/2 inch deep with custom-built slant-bed planters using random flow seeding units. Open pollinated varieties (i.e. Topmark) sell for 10% of the cost of most hybrids, however, hybrids are often used due to earliness and higher yield potential.

**SPECIAL PRACTICES:** A growing technique known as mid-bed trench utilizes a 30" plastic film cover laid over a 20" X 6" deep groove in the center of a bed. The plants develop in an enclosed "greenhouse" atmosphere for 40-50 days. The plastic cover offers frost protection, increased heat, and insect exclusion.

**SOILS:** Well-drained soils are preferred. Sandy or silt loams are sometimes selected for the earliest crop. Heavier soils are preferred because of their greater water holding capacity which slows the onset of vine collapse.

**IRRIGATION:** After planting, the beds are subbed past the seedline. Following emergence, water is often withheld for several weeks. This is done to maintain soil warmth and promote early production. The last irrigation is scheduled one week prior to harvest. Excessive moisture during harvest may increase ground spotting, rotted and soft fruit.

**FERTILIZERS:** Most growers apply 10-34-0 liquid in the beds at planting. Up to 150 pounds of nitrogen are sidedressed.

**POLLINATION:** At least one hive of bees per acre is recommended and 1 1/2 hives are better. The bees should be distributed on at least two sides of a 40 acre field. Recent studies have indicated that yields are increased with heavy bee saturation.

**PEST CONTROL:** Cantaloupes are subject to a number of problems including nematodes, cutworms, aphids, mites, loopers, leafhoppers, leafminers, ground beetles, crickets, sudden wilt, mosaic virus and powdery mildew. Consult your farm advisor for pest control information.

Weed are serious problems in spring cantaloupes. Herbicides have not been successful, therefore growers rely on hand weeding and cultivation.

**HARVESTING:** Spring melons are harvested from May to July. The fruit are hand picked at the full slip stage. Field packing is rapidly being adopted due to better fruit quality and greater yield potential. They are field sorted and graded into cartons holding 9, 12, 18 and 23 melons. Cooling and palletizing cost are paid by the receiver.

### Spring Cantaloupe Projected Production Costs 1989-1990

Mechanical operations at custom rates. Hand labor at \$5.75 per hour (\$4.50 plus Social Security, unemployment insurance, transportation, supervision and fringe benefits).

Yield--350 cartons per acre. 120 days to maturity. Hybrid variety

OPERATION	CUSTOM RATE	MATERIALS		HAND LABOR		COSTS Per Acre	
		Type	Cost	Hours	Dollars		
<b>LAND PREPARATION</b>							
Stubble disc 1x	18.25					18.25	
Disc 1x	9.50					9.50	
List beds	18.50					18.50	
Rerun beds	10.00					10.00	
<b>TOTAL LAND PREPARATION</b>						<b>56.25</b>	
<b>GROWING PERIOD</b>							
Plant, shape beds and fertilize	19.00	1.5 lbs. hybrid seed @ 35 gal. 10-34-0	110.00 / lb. 56.00			184.00 56.00	
Back fill furrow	9.50					9.50	
Spray herbicide	8.00	Herbicide	9.60			17.60	
Thin				6	34.50	34.50	
Center beds	13.75					13.75	
Spike	10.00					10.00	
Cultivate 1x	14.00					14.00	
Fertilize (side-dress) (water-run)	10.50	80# N @ .31 40# N @ .31	24.80 12.40			35.30 12.40	
Hand weed 1x				6	34.50	34.50	
layby herbicide	17.50	Herbicide	2.50			20.00	
Pollination		1.5 Hives @ 18.00 / hive				27.00	
Irrigate 5x		Water 3 3/4 ac/ft	41.25	8	46.00	87.25	
Insect control 3x	5.00	Insecticides	25.50			40.50	
Disease control 1x	5.00	Fungicides	10.75			15.75	
Disc out beds	9.50					9.00	
<b>TOTAL GROWING PERIOD</b>						<b>621.05</b>	
<b>GROWING PERIOD &amp; LAND PREPARATION COSTS</b>						<b>677.30</b>	
Land Rent (net acres)						200.00	
Cash Overhead-----		12% of preharvest costs & land rent					105.28
<b>TOTAL PREHARVEST COSTS</b>						<b>982.58</b>	
<b>HARVEST (field pack)</b>							
Pick, haul, pack and sell		350 cartons @	2.80 per carton			980.00	
<b>TOTAL ALL COSTS</b>						<b>1962.58</b>	

#### PROJECTED INCOME ABOVE COSTS

		price/carton					Breakeven \$/carton
		4.00	5.00	6.00	7.00	8.00	
Cartons	300	-623	-323	-23	277	577	6.08
	350	-563	-213	137	487	837	5.61
per	400	-503	-103	297	697	1097	5.26
acre	450	-443	7	457	907	1357	4.98
	500	-383	117	617	1117	1617	4.77

**CARROT CULTURE**  
1989-1990

<u>YEAR</u>	<u>ACRES</u>	<u>YIELD/ACRE (TONS)</u>	<u>VALUE/TON</u>
1988	12813	24.3	\$122
1987	12038	25.9	180
1986	10754	25.0	207
1985	9472	19.0	207
1984	7913	23.4	151

**PLANTING DATES:** Early carrots are planted the last week in August and early September. Later maturing carrots are planted in October and early November. Carrot beds are normally planted with six rows of carrots on 42 inch beds. Three rows are placed on each bed shoulder. Rows are usually 1 1/2 inches apart. Both natural raw seed and coated seed are used. Florida and Arizona compete in our carrot markets.

**VARIETIES:** "Long Emperor 58" is the standard open pollinated variety grown. Hybrid varieties are widely used. Cost of hybrid seed is about \$48 per pound. Carrots are seeded at a rate of 750,000 to 1,000,000 live seeds per acre. Germination usually runs 80% and seed counts may be 175,000 to 400,000 per pound. The seeding rate per acre is calculated accordingly.

**SOILS:** Carrots can be grown on many of the soil types in the county. Best root development is obtained in the lighter soils. Carrots should not be grown on stratified soils. If soils are too heavy, deformed roots will result. Roots will not develop good color if the soil stays too wet.

**IRRIGATION:** Carrots are sprinkler irrigated for stand establishment. Carrots germinate slowly, therefore, the beds must be kept moist to prevent crusting. Sprinklers also reduce the salinity in the seed beds as carrots are very sensitive to salt. Sprinkler costs include rent, in-and-out labor, maintenance and sprinkler operation.

**FERTILIZERS:** Previous crop history will help in determining fertilizer requirements. Phosphate is applied before listing at rates of 450 pounds 0-45-0 per acre. Two hundred pounds of nitrogen are usually ample. Preplant fertilizer should be disced into the soil before listing to prevent forking.

**PEST CONTROL:** Both preplant and layby herbicides are used. Consult your weed control farm advisor for additional information.

Crickets, grasshoppers, striped flea beetle larvae and cutworms can be a problem when seedlings emerge. Later, aphids, whiteflies and spider mites may attack the leaves. Cutworms and aphids may attack crowns. Powdery mildew needs to be controlled if it attacks early in the growing season. Nematodes must be controlled by fumigation and damping-off fungi by seed treatment. Cavity spot and forking disorders have become serious problems in some fields. At present crop rotation away from carrots is the only control. Root rot is usually absent under good cultural practices.

**HARVESTING:** The majority of the carrots are machine harvested, however, a small acreage is hand bunched. Harvesting takes place from December to June. Carrots are shipped with tops on (bunched carrots), in one pound cello bags or topped loose. Prices vary according to container size. Two sizes of cello carrots are packed including jumbos and standards. Jumbos are cheaper to pack, but the cost data does not allow for this reduction to be itemized.

### Carrot Projected Production Costs 1989-1990

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Mechanical operations at custom rates. Hand labor at \$5.75 per hour (\$4.50 plus Social Security, unemployment insurance, and transportation, supervision and fringe benefits).

Yield--800 50-lb. Master poly containers/ac. (22.0 tons).

OPERATION	CUSTOM RATE	MATERIALS		HAND LABOR		COSTS Per Acre
		Type	Cost	Hours	Dollars	
<b>LAND PREPARATION</b>						
Stubble disc 1x	18.25					18.25
Subsoil	29.25					29.25
Disc 1x	9.50					9.50
Landplane 2x	10.00					20.00
Border, cross check & break borders	15.00					15.00
Flood		Water 1/2 ac/ft	5.50	1	5.75	11.25
Fertilize	6.00	450#11-48-0	61.00			67.00
Disc 2x	9.50					19.00
Triplane 1x	8.75					8.75
Fumigation	12.50	Fumigant	96.00			108.50
List	11.50					11.50
<b>TOTAL LAND PREPARATION</b>						<b>318.00</b>
<b>GROWING PERIOD</b>						
Incorporate herbicide	20.25	Herbicide	2.40			22.65
Plant	13.75	3.50# seed @ 42.00	147.00			160.75
Sprinkler irrigate						145.00
Cultivate 2x	10.75					21.50
Spike 2x	10.50					21.00
Fertilize & furrow out 2x	10.50	150 # N @ .31	46.50			67.50
Layby herbicide	8.00	Herbicide	7.60			15.60
Water run fertilizer		50 # N @ .31	15.50			15.50
Irrigate 7x		Water 5 3/4 ac/ft	63.25	9	51.75	115.00
Insect control 1x	4.50	Insecticides	8.50			13.00
<b>GROWING PERIOD</b>						<b>597.50</b>
<b>GROWING PERIOD &amp; LAND PREPARATION COSTS</b>						<b>915.50</b>
Land Rent (net acres)						200.00
Cash Overhead-----		12% of harvest costs and land rent				133.86
<b>TOTAL PREHARVEST COSTS</b>						<b>1249.36</b>
<b>HARVEST COSTS</b>						
Harvest by machine, haul, and pack		800-50 lb. sacks @	4.00/sack (contract rate)			3200.00
<b>TOTAL ALL COSTS</b>						<b>4449.36</b>

#### PROJECTED INCOME ABOVE COSTS (PER ACRE)

	price/master poly sack					Breakeven \$/sack	
	4.50	5.00	5.50	6.00	6.50		
poly sacks	700	-899	-549	-199	151	501	5.78
per	750	-874	-499	-124	251	626	5.67
acre	800	-849	-449	-49	351	751	5.56
	850	-824	-399	26	451	876	5.47
	900	-799	-349	101	551	1001	5.39

CAULIFLOWER CULTURE

1989-1990

<u>YEAR</u>	<u>ACRES</u>	<u>YIELD/ACRE (CARTONS)</u>	<u>VALUE/ACRE</u>
1988	7507	371	\$3291
1987	5640	428	2671
1986	3187	442	2898
1985	1989	534	3909
1984	1006	712	3046

**PLANTING AND HARVESTING DATES:** Plantings start in August and continues through October. While most of the cauliflower is direct seeded, transplanting is also used. Cauliflower is usually grown single rows on 42 inch beds. Natural seed is planted 2-3 inches apart using a precision planter. The stands are thinned to 12-18 inches between plants. Some varieties are grown double row on 42 inch beds. Check with your seedsmen for recommendations. Transplants are placed in premoistened beds and sprinkler irrigated immediately. Cauliflower is harvested from December through early March.

**VARIETIES:** Several cauliflower varieties are needed to produce a continuous supply of 'flower' throughout the season. Varieties include: "Snow Crown", "Candid Charm", "Snow-pak", "Arapaho", "White Rock", "Matra", "Snowball", "Glacier", "Igloo", "Suprimax". Cauliflower seed costs from \$50 per pound for the lowest priced open pollinated variety to \$450 per pound for the newer hybrids. There are 80,000-140,000 seeds per pound. New varieties are continuously being developed. Proper varietal selection keyed to specific planting dates is crucial for cauliflower. A given variety is highly specific as to maturity periods and varieties out-of-slot will give poor performance. Ricing, light weights, and curd breaking are common defects improper planting periods or adverse weather.

**SOILS AND IRRIGATION:** Cauliflower performs well on medium to medium-heavy soils provided there is adequate drainage. On sandy soils, extreme care must be taken not to stress the plants for water or premature heading may occur. Open pollinated cauliflower of the Snowball Y class requires more water than the vigorous blue-green hybrids. Cauliflower is normally sprinkler irrigated for seedling emergence and then converted to furrow irrigation.

**FERTILIZER:** A 400-500 pound broadcast application of 11-52-0 before listing is normal practice. Some cauliflower varieties require more nitrogen than do others. The standard practice is to apply 200 pounds or more actual nitrogen per acre during the growing season to promote vegetative growth of the outer jacket leaves in order to protect the curds from solar yellowing.

**INSECT, DISEASES AND MISCELLANEOUS PROBLEMS:** Cabbage loopers, armyworms, sugarbeet cyst nematodes, flea beetles and aphids must be controlled. Birds such as horned larks are an early season problem. Wind whip causes girdling and perhaps death of small seedlings. Mice may be a problem near harvest. Sooty mold is a surface curd contaminant which frequently occurs near harvest. Downy mildew and bacterial black rot need to be carefully monitored. For the latest information on pest control, consult your local farm advisor or PCA.

**HARVESTING:** Fields are harvested 2-3 times or more depending upon the market. Mature curds six inches or larger are hand harvested and trimmed. The curds are placed on field harvesting machines to be film wrapped and place-packed according to size. Nines (9's), 12's, 16's, and 20's are used, but shippers pack mostly 12's. Currently, all cauliflower is field packed; there are no sheds.



### Cauliflower Projected Production Costs 1989-1990

Mechanical operations at custom rates. Hand labor at \$5.75 per hour (\$4.50 plus Social Security, unemployment insurance, transportation, supervision and fringe benefits)

Yield--500 23-lb. cartons

Direct seeded

OPERATION	CUSTOM RATE	MATERIALS		HAND LABOR--		COSTS Per Acre
		Type	Cost	Hours	Dollars	
<b>LAND PREPARATION</b>						
Stubble disc	18.25					18.25
Subsoil	29.25					29.25
Disc 1x	9.50					9.50
Landplane 2x	10.00					20.00
Border, cross check & break borders	15.00					15.00
Flood		Water 1/2 ac/ft	5.50	1	5.75	11.25
Fertilize	6.00	450# -- 11-52-0	61.00			67.00
Disc 1x	9.50					19.00
Triplane 1x	8.75					8.75
List	11.50					11.50
<b>TOTAL LAND PREPARATION</b>						<b>209.50</b>
<b>GROWING PERIOD</b>						
Precision plant	14.50	Hybrid seed-1.0# @	225.00/#			239.50
Sprinkler irrigate						135.00
Apply herbicide	8.00	Herbicide	33.75			41.75
Thin				10	57.50	57.50
Cultivate 3x	9.75					29.25
Fertilize & furrow out 2x	10.50	150# N @ .31	46.50			67.50
Water-run fertilizer 2x		40# N @ .31	12.40			12.40
Hand weed				4	23.00	23.00
Irrigate 8x		4 1/2 ac/ft	40.50	8	46.00	86.50
Insect control 5x	5.00	Insecticides	42.50			67.50
Disease control 5x	6.00	Fungicide	18.75			48.75
Chop residue	10.00					10.00
<b>TOTAL GROWING PERIOD COSTS</b>						<b>818.65</b>
<b>GROWING PERIOD &amp; LAND PREPARATION COSTS</b>						<b>1028.15</b>
Land Rent (net acres)						200.00
Cash Overhead----		12% of preharvest costs & land rent				147.38
<b>TOTAL PREHARVEST COSTS</b>						<b>1375.53</b>
<b>HARVEST (Field pack)</b>						
Custom harvest, pack, sell and haul		500-23 lb. cartons @	3.90/carton			1950.00
<b>TOTAL ALL COSTS</b>						<b>3325.53</b>

#### PROJECTED INCOME ABOVE COSTS (PER ACRE)

	price/carton	Breakeven					
		5.00	6.00	7.00	8.00	9.00	\$/carton
300		-1046	-746	-446	-146	154	8.49
400		-936	-536	-136	264	664	7.34
500		-826	-326	174	674	1174	6.65
600		-716	-116	484	1084	1684	6.19
700		-606	94	794	1494	2194	5.87

ICEBERG LETTUCE CULTURE  
1989-1990

<u>YEAR</u>	<u>ACRES</u>	<u>YIELD/ACRE (CARTONS)</u>	<u>VALUE/ACRE</u>
1988	31,144	473	\$ 6396
1987	28,986	464	2845
1986	30,554	434	2591
1985	29,450	507	2911
1984	30,062	534	2911

PLANTING DATES: Planting extends continually from Mid-September to Mid-November. Early plantings are harvested in early December, while October plantings are harvested in January and February. Most of the lettuce is planted with pelleted seed and a precision planter. Seeds are planted 2-3 inches apart in-row on 42 inch beds. Cost of seed per acre varies with variety coating, spacing, and seed enhancement treatments. A good range would be \$50.00-\$80.00/acre.

VARIETIES: The date of planting affects the variety grown since the season progresses from extreme heat to cool days and freezing nights, then back to moderately high temperatures in early spring. Varieties commonly planted are: "Excell", "Empire", "Palmetto", "Valor", "Diplomat", "La Jolla", "Winterset", "Desert Queen", "Greenbud", "MOR 109", "Vanmor", "Winterhaven", "Red Coach 74", and "Vanguard". Early plantings mature in about 90 days while later ones require 120 or more days.

SOILS: Silt loams and sandy soils are preferred. The lighter soils provide better drainage during cold weather and warm up more readily. Lettuce has a moderately low degree of salt tolerance. Excess salinity results in poor seed germination and small heads.

IRRIGATION: Most growers use sprinklers until the seedlings emerge to provide better stands. Gated pipe is also used, especially near harvest. The irrigation labor costs used also include shovel work, grader work, and pipe setting.

FERTILIZERS: Four hundred fifty pounds of 11-52-0 are broadcast prior to listing. Nitrogen is sidedressed just after thinning and during later growth. Early, warm-season lettuce requires less N than that grown in January and February. About 150 pounds N are used early, while 200-250 pounds are applied to the cold weather crop.

PEST CONTROL: Herbicides are applied preplant incorporated or preemergence. Watch for crickets, cutworms, leafminers, salt marsh caterpillars, and beet armyworms. Cabbage loopers can be especially serious after thinning. The most serious diseases are big vein, lettuce infectious yellows virus, bottom rot, and sclerotinia. Use mosaic-free seed 0:30000.

HARVESTING: Lettuce is field packed in cartons, hauled to vacuum coolers and shipped to market in refrigerated trucks. Field packing of film-wrapped heads is also common. Cooling and palletizing is paid by the receiver. Some companies bulk harvest lettuce in bins to be shredded for use by fast food outlets.

## Iceberg Lettuce Projected Production Costs 1989-1990

Mechanical operation at custom rates. Hand labor at \$5.75 per hour (\$4.50 plus Social Security, unemployment insurance, transportation, supervision and fringe benefits).  
Yield--500 50 lb. cartons per acre 90-120 days to maturity.

OPERATION	CUSTOM RATE	MATERIALS		HAND LABOR		COSTS Per Acre
		Type	Cost	Hours	Dollars	
<b>LAND PREPARATION</b>						
Stubble disc	18.25					18.25
Subsoil	29.25					29.25
Disc 1x	9.50					9.50
Landplane 2x	10.00					20.00
Border, cross check & break borders	15.00					15.00
Flood		Water 1/2 ac/ft	5.50	1	5.75	11.25
Fertilize	6.00	450# 11-52-0	61.00			67.00
Disc 2x	9.50					19.00
Triplane 1x	8.75					8.75
List	11.50					11.50
<b>TOTAL LAND PREPARATION</b>						<b>209.50</b>
<b>GROWING PERIOD</b>						
Sprinkler irrigate						135.00
Precision plant	14.50	Coated seed	70.00			84.50
Thin				10	57.50	57.50
Incorporate herbicide	18.50	Herbicide	11.67			30.17
Cultivate 3x	10.75					32.25
Fertilize & furrow out 2x	10.50	120# N @ .31	37.20			58.20
Water-run fertilizer		60# N @ .31	18.60			18.60
Hand weed 1x				12	69.00	69.00
Irrigate 6x		Water 3 1/2 ac/ft	38.50	7	40.25	78.75
Insect control 7x	5.00	Insecticides	72.00			107.00
Disc out beds	9.50					9.50
<b>TOTAL GROWING PERIOD</b>						<b>680.47</b>
<b>GROWING PERIOD &amp; LAND PREPARATION COSTS</b>						<b>889.97</b>
Land Rent (net acres)						200.00
Cash Overhead-----		12% of preharvest costs & land rent				130.80
<b>TOTAL PREHARVEST COSTS</b>						<b>1220.77</b>
<b>HARVEST</b>						
Custom harvest: cut, pack, haul and sell		500 cartons @	3.40 per carton			1700.00
<b>TOTAL ALL COSTS</b>						<b>2920.77</b>

### PROJECTED INCOME ABOVE COSTS (PER ACRE)

	price/ 50 lb. carton	Breakeven				
		4.00	5.00	6.00	7.00	8.00 \$/carton
500	-921	-421	79	579	1079	5.84
600	-861	-261	339	939	1539	5.43
700	-801	-101	599	1299	1999	5.14
800	-741	59	859	1659	2459	4.93
900	-681	219	1119	2019	2919	4.76

**MIXED LETTUCE CULTURE**  
1989-1990

<u>YEAR</u>	<u>ACRES</u>	<u>YIELD/ACRE (CARTONS)</u>	<u>VALUE/ACRE</u>
1988	2336	588	\$9900
1987	1772	799	3749
1986	924	633	4310
1985	1388	755	2679
1984	605	594	2376

**YIELDS:** The term "mixed lettuce" includes greenleaf, redleaf, butter and Romaine (cos) types. Some lettuce growers plant endive and escarole along with mixed lettuce. Each type has a different yield potential, but yields of 500-1300 cartons per acre are normal.

**VARIETIES:** The standard varieties are "Royal Green", "Genegreen", "Waldman's Green", "Esmeralda" (greenleaf); and "Prizehead", "Deep Red", "Big Red", "Royal Red" (redleaf); "Dark Green Boston" (butterhead); and "Paris Island Cos", "Green Towers" (Romaine).

**PLANTING DATES AND CULTURE:** Some growers plant September 15 - November 5, while others concentrate mostly on October plantings. The crop is harvested December, January and February. The seed is normally planted at a 2-3 inch spacing using pelleted seed and a precision planter on 42 inch double row beds. Seed is planted 1/4 inch deep and sprinkler irrigated to emergence. After emergence the field is converted to furrow irrigation. The plants are thinned 6-10 inches in row depending upon variety.

**FERTILIZERS:** Four hundred fifty pounds of 11-52-0 per acre are broadcast prior to listing the beds. Nitrogen is sidedressed just after thinning and during later growth stages. Early season lettuce requires less nitrogen than later planted lettuce. About 150 pounds of nitrogen are used for the early season crop and 200-250 pounds for late season lettuce.

**PEST CONTROL:** Watch for leafminers, crickets, cutworms, salt marsh caterpillars, beet armyworms and cabbage loopers. The most serious diseases are big vein, bottom rot, sclerotinia drop and infectious yellows virus.

Consult your farm advisor for the latest pest control recommendations.

**HARVESTING:** Lettuce is hand cut and harvested with 24 plants per carton. Weights per carton vary according to type. Redleaf, greenleaf, and butter weigh 25 pounds, and Romaine carton weigh 40 pounds. The cartons are cooled and shipped to markets in refrigerated trucks. The receiver pays for cooling and palletizing.

### Mixed Lettuce Projected Production Costs 1989-1990

Mechanical operation at custom rates. Hand labor at \$5.75 per hour (\$4.50 plus Social Security, unemployment insurance, transportation, supervision and fringe benefits).

Yield--700 cartons per acre 90-120 days to maturity. Romaine lettuce

OPERATION	CUSTOM RATE	MATERIALS		HAND LABOR		COSTS Per Acre
		Type	Cost	Hours	Dollars	
<b>LAND PREPARATION</b>						
Stubble disc	18.25					18.25
Subsoil	29.25					29.25
Disc 1x	9.50					9.50
Landplane 2x	10.00					20.00
Border, cross check & break borders	15.00					15.00
Flood		Water 1/2 ac/ft	5.50	1	5.75	11.25
Fertilize	6.00	450# 11-52-0	61.00			67.00
Disc 2x	9.50					19.00
Triplane 1x	8.75					8.75
List	11.50					11.50
<b>TOTAL LAND PREPARATION</b>						<b>209.50</b>
<b>GROWING PERIOD</b>						
Precision plant	14.50	Coated seed	62.00			76.50
Spray herbicide	8.00	Herbicide	10.20			18.20
Sprinkler irrigate						135.00
Thin				10	57.50	57.50
Cultivate 3x	10.75					32.25
Fertilize & furrow out 2x	10.50	120# N @ .31	37.20			58.20
Water-run fertilizer		60# N @ .31	18.00			18.00
Hand weed 1x				12	69.00	69.00
Irrigate 6x		Water 3 1/2 ac/ft	38.50	7	40.25	78.75
Insect control 7x	5.00	Insecticides	72.00			107.00
Stubble disc	18.25					18.25
<b>TOTAL GROWING PERIOD</b>						<b>668.65</b>
<b>GROWING PERIOD &amp; LAND PREPARATION COSTS</b>						<b>878.15</b>
Land Rent (net acres)						200.00
Cash Overhead-----		12% of preharvest costs & land rent				129.38
<b>TOTAL PREHARVEST COSTS</b>						<b>1207.53</b>
<b>HARVEST COSTS</b>						
Custom harvest: cut, pack, sell and haul to cooler		700 cartons @	2.70	per carton		1890.00
<b>TOTAL ALL COSTS</b>						<b>3097.53</b>

#### PROJECTED INCOME ABOVE COSTS (PER ACRE)

	price/ carton	Breakeven					
		3.00	4.00	5.00	6.00	7.00 \$/carton	
Cartons	600	-1028	-428	172	772	1372	4.71
per	700	-998	-298	402	1102	1802	4.43
acre	800	-968	-168	632	1432	2232	4.21
	900	-938	-38	862	1762	2662	4.04
	1000	-908	92	1092	2092	3092	3.91

**MIXED MELON CULTURE  
1989-1990**

<u>YEAR</u>	<u>ACRES</u>	<u>HONEYDEWS</u> <u>YIELD/ACRE (CARTONS)</u>	<u>VALUE/ACRE</u>
1988	2423	604	\$1340
1987	3624	476	2367
1986	3567	292	1340
1985	2937	394	2504
1984	2625	425	3150

<u>YEAR</u>	<u>ACRES</u>	<u>MISCELLANEOUS MELONS</u> <u>YIELD/ACRE (CARTONS)</u>	<u>VALUE/ACRE</u>
1988	950	452	\$3128
1987	743	430	2056
1986	760	368	1760
1985	1567	215	1371
1984	1265	305	2266

**PLANTING DATES:** Mixed melons are planted in July and early August for harvest starting in October until frost. A small acreage may also be planted in the spring.

**Yield:** The term "mixed melons" includes the following muskmelons: honeydew, crenshaw, casaba, Juan canari, Santa Claus, and Persian. The greatest acreage is sown to honeydews and crenshaws. Yields vary with season, disease incidence and kind of melon. There are potentially 1200-1300 cartons per acre, but most often yields are half that amount. Some years, the average yield is only 300-500 cartons per acre due to infectious yellows virus.

**VARIETIES AND PLANTING:** The standard honeydew varieties are "Green Flesh Honeydew", "Orange Flesh Honeydew" and Hybrid Honeybrew. "White Crenshaw" is becoming more popular than "Green Skinned Crenshaw" due to sunburn resistance. White crenshaw has a pale yellow skin and salmon colored flesh.

Melon seed is sown in single rows down the middle of alternate 42 inch N-S beds. The seed is planted about 1/2 inch deep. After emergence the plants are thinned 6-12 inches apart depending upon planting date and melon type.

Later in the season the non-planted offbeds are split and the soil is moved to form 80 inch wide beds. Cultivation of weeds and sidedress fertilization are accomplished during this phase of culture.

**FERTILIZERS:** Three hundred pounds of 11-52-0 may be applied prior to listing (as needed). Sixty to eighty pounds of nitrogen are sidedressed in a single application. Fall melons tend to grow larger in size than the spring planted crop. Size is controlled by spacing, fertilization and irrigation stress.

**POLLINATION:** One to 1 1/2 bee colonies per acre are recommended. The bees should be distributed on at least two sides per 40 acres.

**PEST CONTROL:** Most growers use only mechanical cultivation and hand hoeing for weed control. Insect pests include: crickets, ground beetles, cutworms, loopers, armyworms, leafminers and aphids. Diseases include: powdery mildew, downy mildew, lettuce infectious yellows virus, charcoal rot and sudden wilt. Consult your farm advisor for the latest pest control recommendations.

**HARVESTING:** Mixed melons are usually field packed, or picked and hauled to the edge of the field to small temporary packing sheds. The melons are packed into cardboard cartons containing a divider partition. There are 5, 6 or 8 melons per 30 pound carton. The cartons are forced air cooled prior to shipping. Cooling and palletizing are paid by the receiver.

### Mixed Melon Projected Production Costs 1989-1990

Mechanical operations at custom rates. Hand labor at \$5.75 per hour (\$4.50 plus Social Security, unemployment insurance, transportation, supervision and fringe benefits).  
Yield--600 cartons per acre. 85-90 days to maturity. Hybrid Honeydews

OPERATION	CUSTOM RATE	MATERIALS		HAND LABOR		COSTS Per Acre
		Type	Cost	Hours	Dollars	
<b>LAND PREPARATION</b>						
Stubble disc 1x	18.25					18.25
Subsoil 1x	29.25					29.25
Disc 1x	9.50					9.50
Landplane 2x	10.00					20.00
Border, cross check & break borders	15.00					15.00
Flood		Water 1/2 ac/ft	5.50	1	5.75	11.25
Fertilize	4.50	300# 11-52-0	40.50			45.00
Disc 2x	9.50					19.00
Triplane	8.75					8.75
List flat beds	11.50					11.50
<b>TOTAL LAND PREPARATION COSTS</b>						<b>169.25</b>
<b>GROWING PERIOD</b>						
Plant & shape	12.00	Seed 1 1/2# @ 210.00	315.00			327.00
Thin				5	28.75	28.75
Cultivate and reshape 2x	18.00					36.00
Fertilize & furrow out 1x	10.50	60# N @ .31	18.60			29.10
Pollination		Hives 1 1/2 @ 18.00	27.00			27.00
Hand weed 1x				6	34.50	34.50
Irrigate 3x		Water 2 ac/ft	22.00	8	46.00	68.00
Water run fertilizer		60# N @ .31	18.60			18.60
Insect control 4x	4.50	Insecticides	36.00			54.00
Disease control 2x	5.00	Fungicides	14.50			24.50
Disc out beds	9.50					9.50
<b>TOTAL GROWING PERIOD</b>						<b>656.95</b>
<b>GROWING PERIOD &amp; LAND PREPARATION COSTS</b>						<b>826.20</b>
Land Rent (net acres)						175.00
Cash Overhead-----		12% of Preharvest costs & land rent				120.14
<b>TOTAL PREHARVEST COSTS</b>						<b>1121.34</b>
<b>HARVEST (Field pack)</b>						
Pick, haul, pack and sell		600 cartons @	2.60 per carton			1560.00
<b>TOTAL ALL COSTS</b>						<b>2681.34</b>

#### PROJECTED INCOME ABOVE COSTS (PER ACRE)

		price/carton					Breakeven \$/carton
		3.50	4.50	6.50	7.50	8.50	
Cartons per acre	400	-761	-361	439	839	1239	5.40
	500	-671	-171	829	1329	1829	4.84
	600	-581	19	1219	1819	2419	4.47
	700	-491	209	1609	2309	3009	4.20
	800	-401	399	1999	2799	3599	4.00

**MARKET ONION CULTURE-IMPERIAL SWEETS  
1989-1990**

<u>YEAR</u>	<u>ACRES</u>	<u>YIELD/ACRE (SACKS)</u>	<u>VALUE/ACRE</u>
1988	3120	679	\$ 2417
1987	3291	818	8594
1986	2544	852	3186
1985	3273	591	2453
1984	3069	524	2522

**PLANTING:** Most acreage is direct seeded from Mid-October to Mid-November. Forty-two inch beds with 4 to 6 lines are used. Some plantings have been made with three lines on narrow beds.

**VARIETIES:** Onions are sensitive to day length and temperature. Only the early maturing, short day types are grown. The most popular varieties are: "Rio Hondo", "Goldrush", "Henry's Special", "Colossal", "Ringer", "Texas Early Grano 502", "White Supreme" and "Red Grano". Texas Grano and other ringer types are produced for the fried onion ring market. Some fields qualify to be marketed as "Imperial Sweets".

**SOILS:** Medium-textured sandy loams are the most desirable soils. Onions are shallow rooted and need a friable soil which retains moisture, especially after cultivation. Avoid salty, hard, or weed-infested soils.

**IRRIGATION:** Onions should never suffer from lack of water. Stressing onions for water before maturity may cause splitting and increases their pungency. Weather and soil conditions determine the number of irrigations (usually 7-12). Irrigation costs include shovel work, pipe setting, and motor grading.

**FERTILIZER:** Generally four hundred fifty pounds of 11-52-0 are broadcast prior to listing. One hundred fifty to 200 pounds of nitrogen are applied during the growing season.

**PEST CONTROL:** Mites, thrips, armyworms, leafminers, maggots, downy mildew, purple blotch, and nematodes may be problems. Pink root is a soil-borne disease affecting onions; crop rotation and resistant varieties should be used to suppress the problem.

Herbicides are commonly applied pre-emergence. Consult your farm advisor for the latest recommendations.

**HARVESTING:** Harvesting takes place from late March through May after 25% of the tops have fallen over. Bulbs are dug, hand topped and sacked in burlap for 3-5 days to cure. The sacks are then dumped into bulk trucks and hauled to sheds for grading, re-sacking, loading and shipping.

Mechanical harvesting is also practiced. The field equipment is similar to that used in dehydrator onions with a topper, digger and sorter. The major difference is that the sorter contains high speed whirling blades that trim roots and excess tops prior to sacking.

Field packing is also being practiced. Burlap sacks of cured onions are sorted, sized and packed on field harvest machines making a packing shed unnecessary. The major sizes packed are jumbo, mediums, and repackers.



## Market Onion Projected Production Costs 1989-1990

Mechanical operation at custom rates. Hand labor at \$5.75 per hour (\$4.50 plus Social Security, unemployment insurance, transportation, supervision and fringe benefits).

Yield--800 50 lb. sacks per acre 150+ days to maturity Imperial Sweets

OPERATION	CUSTOM RATE	MATERIALS		HAND LABOR		COSTS Per Acre
		Type	Cost	Hours	Dollars	
<b>LAND PREPARATION</b>						
Stubble disc	18.25					18.25
Subsoil	29.25					29.25
Disc 1x	9.50					9.50
Landplane 2x	10.00					20.00
Border, cross check & break borders	15.00					15.00
Flood		Water 1/2 ac/ft	5.50	1	5.75	11.25
Fertilize	6.00	450# 11-52-0	61.00			67.00
Disc 2x	9.50					19.00
Triplane 1x	8.75					8.75
List	11.50					11.50
<b>TOTAL LAND PREPARATION</b>						<b>209.50</b>
<b>GROWING PERIOD</b>						
Power mulch beds 1x	18.50					18.50
Precision plant	16.75	Coated seed	117.00			133.75
Apply herbicide	8.00	Herbicide	33.75			41.75
Sprinkler irrigate						145.00
Cultivate 3x	10.75					32.25
Fertilize & furrow out 2x	10.50	120# N @ .31	37.20			58.20
Water-run fertilizer		60# N @ .31	18.60			18.60
Weed control 2x	8.00	Herbicide	15.30			31.30
Hand weed 1x				9	51.75	51.75
Irrigate 6x		Water 4 1/2 ac/ft	49.50	13	74.75	124.25
Disease control 3x	5.00	Fungicides	45.00			60.00
Insect control 5x	5.00	Insecticides	35.00			60.00
Disc beds 1x	9.50					9.50
<b>TOTAL GROWING PERIOD</b>						<b>784.85</b>
<b>GROWING PERIOD &amp; LAND PREPARATION COSTS</b>						<b>994.35</b>
Land Rent (net acres)						200.00
Cash Overhead-----		12% of preharvest costs & land rent				143.32
<b>TOTAL PREHARVEST COSTS</b>						<b>1337.67</b>
<b>HARVEST</b>						
Dig, top, haul, grade, sack and sell		800 sacks @	3.25 per sack			2600.00
<b>TOTAL ALL COSTS</b>						<b>3937.67</b>

### PROJECTED INCOME ABOVE COSTS (PER ACRE)

	price/ 50 lb. sack	Breakeven					
		4.00	4.50	5.00	5.50	6.00	\$/sack
Sacks	600	-888	-588	-288	12	312	5.48
per	700	-813	-463	-113	237	587	5.16
acre	800	-738	-338	62	462	862	4.92
	900	-663	-213	237	687	1137	4.74
	1000	-588	-88	412	912	1412	4.59

**PROCESSOR ONION CULTURE**  
1989-1990

<u>YEAR</u>	<u>ACRES</u>	<u>YIELD/ACRE (TONS)</u>	<u>VALUE/TON</u>
1988	5904	22.2	\$ 68
1987	5014	21.5	68
1986	4457	22.2	72
1985	4237	16.5	78
1984	4219	17.8	75

PLANTING DATES: Contracting companies recommend the planting date to the grower and supply the seed. Planting dates may differ with variety, but normally processor onions will be planted from October 25 to November 20.

VARIETIES: Most processor onions are White Creole derivatives selected for a high soluble solids content.

SOILS: Onions require soils with a low salt content. Sandy or medium textured soils are the best.

IRRIGATION: Onions should never suffer from lack of water. Weather and soil conditions determine the number of irrigations. Sprinklers are used for germination. Also included in irrigation costs are expenses for shovel work, pipe setting and grading.

FERTILIZERS: Four hundred fifty pounds of 11-52-0 are broadcast prior to listing. Up to 200 pounds of nitrogen are applied during the growing season.

PEST CONTROL: Mites, thrips, armyworms, leafminers, maggots, downy mildew, purple blotch, and nematodes may be problems. Pink root is a soil-borne disease which can reduce yields significantly, field rotation and resistant varieties should be used when a problem is expected.

Herbicides are commonly applied pre and postemergence. Consult your farm advisor for latest recommendations.

HARVESTING: The onions are machine topped, undercut and covered with a fine layer of soil to cure before harvesting. The onions are then machine dug and lifted to a sorter to remove clods and excess debris before loading on trucks for shipment to the processing plant. All harvesting is done by the contractor. Contracts for acreage vary yearly according to the supplies on hand at the processing plant. Some years, there are large carryovers.

## Processing Onion Projected Production Costs 1989-1990

Mechanical operations at custom rates. Hand labor at \$5.75 per hour (\$4.50 plus Social Security, unemployment insurance, transportation, supervision and fringe benefits).

Yield- 20 Tons

OPERATION	CUSTOM RATE	MATERIALS		HAND LABOR		COSTS Per Acre
		Type	Cost	Hours	Dollars	
<b>LAND PREPARATION</b>						
Stubble disc	18.25					18.25
Subsoil	29.25					29.25
Disc 1x	9.50					9.50
Landplane 2x	10.00					20.00
Border, cross check & break borders	15.00					15.00
Flood		Water 1/2 ac/ft	5.50	1	5.75	11.25
Fertilize	6.00	450# 11-52-0	61.00			67.00
Disc 2x	9.50					19.00
Triplane 1x	8.75					8.75
List	11.50					11.50
<b>TOTAL LAND PREPARATION</b>						<b>209.50</b>
<b>GROWING PERIOD</b>						
Power mulch	18.00					18.00
Precision plant	16.75	Coated seed	N/C			16.75
Herbicide 2x	8.00	Herbicide	33.75			49.75
Sprinkler irrigate						145.00
Cultivate 2x	10.75					21.50
Fertilize & furrow out 2x	10.50	200# N @ .30	62.00			83.00
Weed control 2x	8.00	Herbicide	15.30			31.30
Hand weed				9	51.75	51.75
Irrigate 12x		Water 4 1/2 ac/ft	49.50	13	74.75	124.25
Insect control 5x	4.50	Insecticides	42.50			65.00
Disease control 3x	6.00	Fungicides	45.00			63.00
Disc 1x	9.50					9.50
<b>TOTAL GROWING PERIOD</b>						<b>678.80</b>
<b>GROWING PERIOD &amp; LAND PREPARATION COSTS</b>						<b>888.30</b>
Land Rent (net acres)						200.00
Cash Overhead-----		12% of preharvest costs & land rent				130.60
<b>TOTAL PREHARVEST COSTS</b>						<b>1218.90</b>

HARVEST COSTS                      None -- contracted @ 73.00 / ton return to grower

		PROJECTED INCOME ABOVE COSTS (PER ACRE)					
		tons/acre					
		14.00	16.00	18.00	20.00	22.00	Breakeven tons/acre
\$/Ton	73.00	-197	-51	95	241	387	17

**SQUASH CULTURE**  
1989-1990

**YIELD:** Acreage is usually below 500 and statistics on actual yields are not published. Typical yields ranges from 300 - 800 cartons per acre.

**PLANTING DATES:** Fall plantings are seeded in late August and September. Spring plantings are made in late December and early January for plantings. Open grown spring squash is planted in January, February and March.

**VARIETIES:** Dark green zucchini is the predominant type produced. Popular varieties include "Chefini", "Raven", "Ambassador" and "Onyx". "Dixie" is the main yellow variety and "Peter Pan" is a popular scallop type. Planting rates vary from 1 1/2 pounds seed/acre for hand planting with hill drops on 60 inch beds to 6 pounds for the machine planted crop.

**SOILS:** Squash is produced on a wide variety of soils. Fields should be low in salinity.

**IRRIGATION:** After planting, the beds are subbed past the seedline. Following emergence, irrigation may be used sparingly until flowering to maintain soil warmth and promote early production. Once fruit formation has started, the beds are kept moist.

**FERTILIZERS:** Two hundred fifty pounds of 11-52-0 should be applied before listing the beds. Up to 100 pounds of nitrogen may be sidedressed. Growers vary in fertilizer practices. Water-run applications of nitrogen fertilizers are often used. Care should be taken not to over fertilize yellow crookneck grown on sandy ground, as too much nitrogen can give the yellow fruit a green tinge.

**PESTS & DISEASES:** Squash leafcurl and lettuce infectious yellows are virus disease spread by the sweet potato whitefly, and have become serious problems in fall planted squash. All squash are affected; yellow crookneck, straightneck and scallop varieties are more severely injured than zucchini. Watermelon mosaic virus and zucchini yellows mosaic virus can damage any spring planted squash. There are no chemical control measures effective on infected squash, and control of the aphid vectors (after they have fed on squash plants) will not prevent infection. Floating row covers have been successfully used as insect excluders and have provided good virus control for both seasons. The cost for row covers is approximately \$800 per acre.

Other pest problems include: powdery mildew, leafminer, aphids, crickets, ground beetles, leafhoppers, mites, cutworms, birds, and rodents. Seed loss to birds or rodents can require extensive replanting. Poison baits are available through the Agricultural Commissioner's office.

**HARVESTING:** Squash is hand harvested. Zucchini fruits are selected when they are 8 - 10 inches in length. Fruits which grow too large are in less demand and, therefore, sell at lower prices. The squash is hauled in picking boxes to local sheds where the fruits are graded to size and quality and then packed in 18 to 25 pound cartons. Normal grades include extra fancy, medium, large and choice, depending on demand at harvest time.

**SPRING SQUASH:** South-sloped, 5-foot beds are frequently used for spring squash plantings. Brown craft paper is used to form a wind barrier and heat trap. It is fixed upright on the south shoulder of east-west beds with stakes, wire and arrow weed (brushing). Another method used is to support the paper with lath (staking). The lath are spaced one foot apart on both sides of the paper. The lath cost four cents each and last from 10 to 20 years. The 15 inch craft paper cost \$150/acre with installation and removal costing \$250/acre. Floating row covers are also used for early planting. The covers provide early season frost protection and a "greenhouse effect" which hastens crop maturity. These covers cost \$600-\$700/acre. Some growers use black plastic mulch to obtain early spring crops. The mulched squash fields are usually grown under drip irrigation. The plastic mulch cost \$150-\$200/acre with an additional \$50/acre for removal.

## Summer Squash Projected Production Costs 1989-1990

Mechanical operations at custom rates. Hand labor at \$5.75 per hour. (\$4.50 plus Social security, unemployment insurance, transportation, supervision and fringe benefits).

Yield - 500-20 lb. cartons per acre

Approx. 70 days to maturity.

OPERATION	CUSTOM RATE	MATERIALS		HAND LABOR		COSTS Per Acre
		Type	Cost	Hours	Dollars	
<b>LAND PREPARATION</b>						
Stubble disc	18.25					18.25
Disc 1x	9.50					9.50
Landplane 2x	10.00					20.00
Border, cross check and break borders	15.00					15.00
Flood		1/2 ac.ft.	5.50	1	5.50	11.00
Disc 2x	9.50					19.00
Fertilize	6.00	250# 11-52-0	33.75			39.75
List beds	18.50					18.50
Rerun beds	10.00					10.00
<b>TOTAL LAND PREPARATION COSTS</b>						<b>161.00</b>
<b>GROWING PERIOD</b>						
Plant & shape beds	19.00	Hybrid seed 2# @23.50/lb	47.00			66.00
Thin				8	46.00	46.00
Move bed top	15.75					15.75
Center beds	13.75					13.75
Cultivate 1x	16.00					16.00
Fertilize & furrow out 1x	11.00	80# N @ .31	24.80			35.80
Hand weed 1x				6	34.50	34.50
Irrigate 10x		4 ac.ft.	44.00	9	51.75	95.75
Pollination		1 hive/acre	18.00			18.00
Insect control 4x	5.00	Insecticides	36.00			56.00
Disease control 2x	5.00	Fungicides	20.00			30.00
Disc out beds	9.50					9.50
<b>TOTAL GROWING PERIOD COSTS</b>						<b>437.05</b>
<b>GROWING PERIOD &amp; LAND PREPARATION COST</b>						<b>598.05</b>
Land Rent (net acres)						200.00
Cash overhead		12% of preharvest cost and land rent				95.77
<b>TOTAL PREHARVEST COSTS</b>						<b>893.82</b>
<b>HARVEST</b>						
Pick, haul, grade, pack and sell		500 cartons @	2.60 per carton			1300.00
<b>TOTAL ALL COSTS</b>						<b>2193.82</b>

### PROJECTED INCOME ABOVE COSTS (PER ACRE)

	Cartons per acre	price/carton					Breakeven \$/box
		3.00	4.00	5.00	6.00	7.00	
	400	-734	-334	66	466	866	4.83
	500	-694	-194	306	806	1306	4.39
	600	-654	-54	546	1146	1746	4.09
	700	-614	86	786	1486	2186	3.88
	800	-574	226	1026	1826	2626	3.72

**MATURE GREEN TOMATOES - BUSH GROWN**  
1989-1990

<u>YEAR</u>	<u>ACRES</u>	<u>YIELD/ACRE (CARTONS)</u>	<u>VALUE/ACRE</u>
1988	835	1292	\$5259
1987	683	1204	9511
1986	746	743	5259
1985	1019	698	4228
1984	1462	519	3966

PLANTING DATES: Bush tomatoes are direct seeded from early January through February 15 for May-June harvest. A small acreage may also be seeded in July or August for harvest in winter.

VARIETIES: Hybrids "Jackpot", "Valerie", "Celebrity", and open-pollinated "P-19" are the main varieties grown. However, other varieties resistant to fusarium, verticillium and nematodes are planted on small acreages.

SOILS: Medium to heavy well-drained soils are best. Such soils maintain their moisture content longer and more uniformly than sandy soils. Fields should be low in salinity.

IRRIGATION: Moisture should be maintained as uniformly as possible. Large fluctuations in soil moisture or water stress conditions can be detrimental to plant and fruit development. Sprinklers are used to germinate the seed. They are removed following plant emergence.

FERTILIZERS: Before listing, the normal practice is to broadcast 450 pounds of 11-52-0. Phosphate fertilizer may be also injected into the bed on both sides of the row or under seed row in addition to the broadcast application. After thinning, 150-200 pounds of N are sidedressed and water-run depending on the previous crop. Excess nitrogen results in delayed and uneven maturity.

PEST CONTROL: The primary insect problems are tomato fruit worms, armyworms, tobacco budworms, thrips, leafminers, aphids, pinworms, stink bugs and cutworms. Alfalfa mosaic, and powdery mildew are the main diseases. Tomato plant decline can be a problem. Do not plant tomatoes in the same field more than two years. Fumigation is required for root knot nematode infested fields. Pre-emergence and layby herbicides are applied. Consult your pest control farm advisors for latest information.

HARVESTING: Most of the fruit is picked in the mature green stage, placed in field trailers or bins and hauled to shed for washing, cooling, grading and packing.

## Mature Green Tomato Projected Production Costs 1989-1990

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Mechanical operations at custom rates. Hand labor at \$5.75 per hour (\$4.50 plus Social Security, unemployment insurance, transportation, supervision and fringe benefits).

Yield-- 960 25-lb. cartons. Growing period--130 days.

OPERATION	CUSTOM RATE	MATERIALS		HAND LABOR		COSTS Per Acre
		Type	Cost	Hours	Dollars	
<b>LAND PREPARATION</b>						
Stubble disc	18.25					18.25
Subsoil	29.50					29.50
Disc 1x	9.50					9.50
Landplane 2x	10.00					20.00
Border, cross check & break border	15.00					15.00
Flood		Water 1/2 ac/ft	5.50	1	5.75	11.25
Fertilizer (broadcast)	6.00	400# 11-52-0	54.00			60.00
(injected)	10.50	20 gals 10-34-0	32.00			42.50
Disc 2x	9.50					19.00
Float	8.25					8.25
List beds	18.50					18.50
<b>TOTAL LAND PREPARATION</b>						<b>251.75</b>
<b>GROWING PERIOD</b>						
Plant & shape beds	16.75	Seed 1# coated	100.00			116.75
Weed control	8.00	Herbicide	12.00			20.00
Sprinkler irrigate						135.00
Thin 2x				32	184.00	184.00
Cultivate 3x	14.00					42.00
Fertilize 2x	12.00	200# N @ .31	62.00			86.00
Hand weed 1x				10	57.50	57.50
Layby herbicide	17.50	Herbicide	2.50			20.00
Irrigate 12x		Water 5 ac/ft	55.00	8	46.00	101.00
Insect control 10x	5.00	Insecticides	90.00			140.00
Disease control 3x	6.00	Fungicide	15.00			33.00
<b>TOTAL GROWING PERIOD</b>						<b>935.25</b>
<b>GROWING PERIOD &amp; LAND PREPARATION COSTS</b>						<b>1187.00</b>
Land Rent (net acres)						225.00
Cash Overhead--		12% of preharvest costs & land rent				169.44
<b>TOTAL PREHARVEST COSTS</b>						<b>1581.44</b>
<b>HARVEST</b>						
Pick, haul, pack and sell		960 cartons/acre @	4.50 per carton			4320.00
<b>TOTAL ALL COSTS</b>						<b>5901.44</b>

### PROJECTED INCOME ABOVE COSTS (PER ACRE)

		price/carton					Breakeven \$/carton
		4.00	5.00	6.00	7.00	8.00	
	800	-1981	-1181	-381	419	1219	6.48
Cartons	900	-2031	-1131	-231	669	1569	6.26
per	1000	-2081	-1081	-81	919	1919	6.08
acre	1100	-2131	-1031	69	1169	2269	5.94
	1200	-2181	-981	219	1419	2619	5.82

**PROCESSING TOMATO CULTURE  
1989-1990**

<u>YEAR</u>	<u>ACRES</u>	<u>YIELD/ACRE (TONS)</u>	<u>VALUE/TON</u>
1988	4017	36	\$ 48
1987	2510	31	46
1986	2999	37	48
1985	3324	30	51
1984	3785	31	52

**PLANTING:** Cannery tomatoes are planted from early January to about February 20. Twin-rows, 12 inches apart are planted on flat beds with 60 inch centers. Sprinklers are used for germination.

**VARIETIES:** During the past 3-4 years, several varieties have performed well. The square round are the only types used by processors. The varieties "UC 82", "Nema 1200", "Nema 1400", "MOX3032", "FM 6203", "H 100", "P 111B, and several Beatrice Foods, Inc selections are the most widely used. New varieties after they are widely tested under desert area conditions.

**SOILS:** Medium to heavy well-drained soils are best. Such soils maintain moisture longer and more uniformly than sandy soils. Fields selected should be low in salinity.

**FERTILIZER:** Nitrogen and phosphorus may be either broadcast preplant or injected at or before planting. A combination of both methods can also be used. All of the phosphorus should be applied preplant or at planting. One hundred to 150 pounds of phosphorus is either injected or broadcast. Fifty pounds of nitrogen may be applied at or before planting. the remaining 150-225 pounds nitrogen is divided up into three or four applications beginning at thinning. Generally, two sidedressings are adequate.

**THINNING:** All processor cultivars are bush type vines allowing for a high plant population per acre. Single plant spacing is not necessary. Clump thinning which allows two-three plants per hill spaced at 9 to 12 inch centers down the row has performed very well. The use of coated seed and precision planting is possible, eliminating the need for thinning.

**IRRIGATION:** Moisture should be maintained as uniformly as possible throughout the season. Too much water during the early growth of the plant encourages shallow roots. Adequate moisture needs to be maintained later in the season during maximum fruit development.

**PEST CONTROL:** The main insect pests are aphids, tobacco budworms, tomato fruit worms, armyworms, pin worms, thrips and stink bugs. Powdery mildew is often a problem requiring control and Phytophthora root rot can cause severe crop loss. Tomato plant decline can be a problem. Do not plant tomatoes in the same field more than two years. Fumigation is required for root knot nematode infested fields at an additional \$100.00 per acre. For a list of registered and adapted chemicals for weeds, insects and disease control, consult your Farm Advisor's office.

**HARVESTING:** Local growers sign contracts with custom harvesters and truckers to harvest and haul to the processor. Harvesting is coordinated with the processor's plant capacity. Harvest normally begins near June 10 and may continue through early August.



## Processing Tomato Projected Production Costs 1989-1990

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Mechanical operations at custom rates. Hand labor at \$5.75 per hour (\$4.50 plus Social Security, unemployment insurance, transportation, supervision and fringe benefits).

Yield--35 tons. Growing period 140 days.

OPERATION	CUSTOM RATE	MATERIALS Type	Cost	HAND LABOR Hours	Dollars	COSTS Per Acre
<b>LAND PREPARATION</b>						
Disc 2x	9.50					19.00
Triplane 2x	8.75					17.50
Fertilizer	4.50	300# 11-52-0	40.50			45.00
List - Inject	12.00	20 gals. 10-34-0	32.00			44.00
Rotovate - Shape	18.50					18.50
TOTAL LAND PREPARATION						144.00
<b>GROWING PERIOD</b>						
Plant - Shape	15.00	Seed 1#	15.00			30.00
Herbicide	8.00	Herbicide	12.00			20.00
Sprinkler irrigate						135.00
Hand thin - weed				17	97.75	97.75
Cultivate 2x	14.00					28.00
Fertilize 2x	12.00	225# N @ .31	69.75			93.75
Irrigation 10x		4 ac/ft	44.00	8	46.00	90.00
Layby herbicide	17.50	Herbicide	2.50			20.00
Pest control 5x	5.00	Insecticides	98.00			123.00
Disease control 3x	6.00	Fungicides	15.00			33.00
Disc out beds	9.50					9.50
TOTAL GROWING PERIOD						680.00
<b>GROWING PERIOD &amp; LAND PREPARATION COSTS</b>						824.00
Land Rent (net acres)						200.00
Cash Overhead--		12% of preharvest costs & land rent				122.88
<b>TOTAL PREHARVEST COSTS</b>						1146.88
<b>HARVEST</b>						
Custom harvest	35 tons @	16.00/ton				560.00
<b>TOTAL ALL COSTS</b>						1706.88

\$/ton	PROJECTED INCOME ABOVE COSTS (PER ACRE)					Breakeven tons
	tons/acre					
	25	30	35	40	45	
60.00	-207	93	393	693	993	28

**WATERMELON CULTURE**

1989-1990

<u>YEAR</u>	<u>ACRES</u>	<u>YIELD/ACRE (TONS)</u>	<u>VALUE/TON</u>
1988	4275	8.4	\$ 188
1987	4456	13.4	170
1986	3327	12.7	172
1985	5111	6.5	113
1984	4516	7.8	156

**PLANTING DATES:** Watermelons are planted from January to March, and harvested late May until approximately July 15.

**VARIETIES:** "Calsweet" is the most popular open pollinated variety. It has a striped skin, and red flesh. Hybrid "Royal Sweet", with a dark pink flesh and striped skin, is also widely grown. Royal Sweet's flesh is said to increase in red color after harvest. Both varieties yield more than the old standard "Peacock Improved" which was highly prone to sunburn. Open pollinated seed is 6-7 times less costly than hybrids. Many shippers are using seedless varieties which are very expensive to grow. Triploid seedless needs a temperature of roughly 80°F for germination. Therefore, growers use transplants or they must use the plastic midbed trench system of production to obtain the high temperature necessary for germination. Seedless watermelons need one row of pollinator (a standard open pollinated variety) for every 2-3 rows of seedless. Commonly used seedless varieties include: Nova, Laurel, Quality and Jack-of-Hearts. The seed is expensive and costs \$750-1000 per pound.

**SPECIAL CULTURAL PRACTICES:** The plastic midbed trench system of culture is becoming more popular. A thin 1.5 mil sheet of 30 inch polyethylene film is placed over the top of a six inch deep x twenty inch wide groove down the center of a flat bed. Melon seed is planted into the soil at the bottom of the trench prior to laying the plastic. The beds are irrigated and the melons are allowed to grow for 35-45 days. The plastic is then ventilated for a few days and removed. The advantages reported for midbed trench include: frost protection, bird protection, insect exclusion, water savings and earlier planting. Watermelons are also grown on conventional south sloped 80" beds. Covering the melons with vines helps to prevent sunburn.

**SOILS:** Watermelons are best grown on non-saline, sandy loam or silt loam soils. Soil temperatures of 95° are optimum for germination. Black asphalt mulch is occasionally used to improve temperatures in the seedline.

**IRRIGATION:** After planting, the first irrigation should run until the beds are completely subbed. Following emergence, water may be withheld for long periods of time; however, watermelons should not be stressed for water near harvest.

**FERTILIZERS:** Thirty to thirty five gallons of 10-34-0 may be applied preplant during planting-shaping. Up to 200 pounds of nitrogen are later sidedressed in split applications. There is less fertilizer needed when watermelons follow a lettuce crop.

**PEST CONTROL:** Cutworms, aphids, spider mites, darkling ground beetles, leafhoppers, cabbage loopers, and leafminers are the most serious pests of watermelon. Zucchini yellow mosaic and watermelon mosaic virus can severely distort the fruit and vines, reducing yield. Charcoal rot and powdery mildew may also require control. For latest information, consult your farm advisor.

**HARVESTING:** A sharp knife is used to cut melons from the vines. Picked melons may crack open. Melons are picked on the basis of color change, blossom end conditions, and rind roughness. Color change is the most reliable.

Loss of natural protection on the fruit can increase sunburn. Exposed fruit are covered with vines during the harvest period to prevent sunburning each time the field is harvested. A field may be covered more than five times to protect the fruit.

Most fields are picked twice and some a third time depending upon market value and the degree of sunburned fruit. The melons are sorted and packed in large, sturdy fiberboard bins.

## Watermelon Projected Production Costs 1989-1990

Mechanical operations at custom rates. Hand labor at \$5.75 per hour (\$4.50 plus Social Security, unemployment insurance, transportation, supervision and fringe benefits).

Yield--13 tons per acre. 120 days to maturity.

Hybrid variety

OPERATION	CUSTOM RATE	MATERIALS		HAND LABOR		COSTS Per Acre
		Type	Cost	Hours	Dollars	
<b>LAND PREPARATION</b>						
Stubble disc	18.25					18.25
Disc 1x	9.50					9.50
List beds	18.50					18.50
Rerun beds	10.00					10.00
<b>TOTAL LAND PREPARATION</b>						<b>56.25</b>
<b>GROWING PERIOD</b>						
Fumigation	12.50	Fumigant	96.00			108.50
Plant, shape beds and fertilize	19.00	Seed 2# @ 115.00	230.00			249.00
		35 gal. 10-34-0	56.00			56.00
Pollination		1 1/2 hives @18.00	27.75			27.75
Back fill furrows	9.50					9.50
Thin				5	28.75	28.75
Spike	10.00					10.00
Center beds	13.75					13.75
Cultivate 1x	14.00					14.00
Fertilize (inject) (water-run)	14.00	100# N @ .31	31.00			45.00
		100# N @ .31	31.00			31.00
Hand weed 2x				12	69.00	69.00
Irrigate 6x		Water 3 ac/ft	33.00	7	40.25	73.25
Insect control 8x	5.00	Insecticides	72.00			112.00
Disc out beds	9.50					9.50
<b>TOTAL GROWING PERIOD</b>						<b>857.00</b>
<b>GROWING PERIOD &amp; LAND PREPARATION COSTS</b>						<b>913.25</b>
Land Rent (net acres)						200.00
Cash Overhead--		12% of preharvest costs & land rent				133.59
<b>TOTAL PREHARVEST COSTS</b>						<b>1246.84</b>
<b>HARVEST</b>						
Pick, load, haul, sort and sell		13 tons/ acre @	60.00/ton			780.00
<b>TOTAL ALL COSTS</b>						<b>2026.84</b>

### PROJECTED INCOME ABOVE COSTS (PER ACRE)

		price/ton					Breakeven \$/ton
		130.00	145.00	160.00	175.00	190.00	
	10	-547	-397	-247	-97	53	185
Tons	12	-407	-227	-47	133	313	164
per	14	-267	-57	153	363	573	149
acre	16	-127	113	353	593	833	138
	18	13	283	553	823	1093	129