

AS-SI-93

***ASPARAGUS  
PROJECTED  
PRODUCTION COSTS***



***IMPERIAL  
COUNTY  
1992-1993***

***University of California  
Cooperative Extension***

UC COOPERATIVE EXTENSION



# ASPARAGUS PROJECTED PRODUCTION COSTS 1992-1993

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--150-30-lb. pyramid crates (4500 lbs/ac.) 8-10 year crop life

OPERATION	CUSTOM RATE	MATERIALS		HAND LABOR--		COST Per Acre
		Type	Cost	Hours	Dollars	
<b>LAND PREPARATION</b>						
Plow	26.75					26.75
Landplane	10.75					10.75
Disc 2x	10.00					20.00
Border,cross check & break borders	15.00					15.00
Flood		Water 1 ac/ft	11.50	1	5.75	17.25
Disc 2x	10.00					20.00
Laser level	55.00					55.00
Fertilize, double spread	7.00	500# - 11-52-0	67.75			74.75
List	14.00					14.00
Shape beds	8.00					8.00
<b>TOTAL LAND PREPARATION</b>						<b>261.50</b>
<b>GROWING PERIOD</b>						
Transplants and seed		17,000 plants	600.00	53	207.00	807.00
Move beds 3X	14.00					42.00
Cultivate 2x	11.25					22.50
Spike 2x	8.00					16.00
Fertilize and furrow out	10.00	200# N @ .31	62.00			82.00
Hand weed				12	69.00	69.00
Lilliston 1x	10.00					10.00
Irrigate 8x		3 ac/ft	34.50	6	34.50	69.00
Insect control 6x	8.00	Insecticides	52.00			100.00
<b>TOTAL GROWING PERIOD COSTS (FIRST YEAR)</b>						<b>871.50</b>
<b>GROWING PERIOD &amp; LAND PREPARATION COSTS (FIRST YEAR)</b>						<b>1133.00</b>
Land Rent (net acres)						250.00
Cash Overhead----		12 % of preharvest costs & land rent				165.96
<b>TOTAL FIRST YEAR COSTS</b>						<b>1548.96</b>
<b>STAND MAINTENANCE (8-10 YEAR LIFE)</b>						
Chop or swath fern 1x	25.00					25.00
Spread fern for burning				4	23.00	23.00
Burn fern	N/C					
Flail scalp	11.00					11.00
Rotovate-shape beds 1x	20.00					20.00
Spike 2x	8.00					16.00
Cultivate 2x	11.25					22.50
Fertilize 2x	10.00	200# N @ .31	62.00			72.00
Water run fertilizer		200# N @ .15	30.00			30.00
Furrow out	8.50					8.50
Herbicide 2x	10.00	Lorox/diuron	26.00			17.48
Irrigate 15x		8 ac/ft	92.00	10	57.50	149.50
Hand weed				4	23.00	23.00
Insect control 6x	8.00	Insecticide	52.00			100.00
<b>TOTAL ANNUAL COSTS</b>						<b>517.98</b>
<b>GROWING PERIOD COSTS</b>						
Land Rent						250.00
Overhead		12 % land rent and preharvest costs				92.16
Amortization		14 % of first year costs(excluding land rent & overhead)				221.50
<b>TOTAL PREHARVEST COSTS</b>						<b>1081.64</b>
<b>HARVEST COSTS</b>						
Cut,haul, pack and sell		150 -30# crates @	20.00	per crate		3000.00
<b>TOTAL ALL COSTS</b>						<b>4081.64</b>



		PROJECTED PROFIT OR LOSS PER ACRE				Break-even \$/carton
		price/30# crate				
		22.50	25.00	27.50	30.00	
crates	100	-832	-582	-332	-82	30.82
per	125	-769	-457	-144	168	28.65
acre	150	-707	-332	43	418	27.21
	175	-644	-207	231	668	26.18
	200	-582	-82	418	918	25.41



## ASPARAGUS CULTURE 1992-1993

<u>YEAR</u>	<u>ACRES</u>	<u>YIELD/ACRE*</u>	<u>VALUE/ACRE</u>
1991	6,405	102	\$3125
1990	4,516	143	5618
1989	4,347	128	4950
1988	3,935	129	3973
1987	3,821	118	3357

\* 30# crates (Source: I.C. Agricultural Commissioner's Reports)

**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. Bed width varies from 40-60" depending upon grower preference. 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 production. Since asparagus has a long life expectancy, careful attention should be given to the site chosen as it will be tied up for 8-10 years. Also fields that are known to have bermudagrass or nutsedge problems are poor choices for asparagus. The warmer the soil, the earlier the production. For this reason, some fields are located in the warmer zones of the valley.

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

**FERTILIZERS:** Between from 100-200# of phosphate and 200-400# of actual nitrogen are used on most plantings. 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 AND DISEASE CONTROL:** Weeds can become a serious problem in established asparagus. A preemergence herbicide should be applied, after the fern is chopped and burned and before harvest begins. 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.

## ASPARAGUS (continued)

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 (Puccinia asparagi) and Cercospora stem and leafspot (C. asparagi) may require control in some years especially on new plantings. Asparagus root rot (Fusarium oxysporum and F. moniliformi) are problems present during the mid-to-late years of stand life.

**HARVESTING:** Mature 5-foot tall fern is either chopped or windrowed with a swather and after drying it may be burned or baled. Chopping occurs from late November to early December. Then the planting beds are reworked to loosen the surface soil, re-shaped, fertilized, and irrigated prior to the start of harvest usually occurring in mid-to-late January.

Newly emerging spears are hand cut from mid-January through mid-April depending upon temperature and growth. Spears are cut at an angle just below the soil surface with an asparagus knife. Bunches are placed on the beds to be picked up and placed in field boxes carried out of the field on makeshift wheel barrows. Fields are cut every two or three days early in the season, but during warm weather fields are cut daily.

Harvested spears must be approximately 10" long to allow for a 9" trim during packing. Overly small and deformed spears are cut and discarded to allow for growth of marketable spears.

Irrigation is scheduled so that alternate furrows remain dry to allow for workers to walk into the field. Care must be taken not to step on the tips of emerging spears causing mechanical damage. Harvested spears are hauled to sheds for grading, trimming, packing, and cooling.

Asparagus is packed in various containers including: 30# loose, 28 bunches per crate weighing 28 lb. net., 12 bunches weighing 12 lb. net. Sizes for these packs are Jumbo...not less than 13/16" diameter, Extra Large 10/16", Large 7/16", Standard 5/16", and Small 3/16" and larger. Diameter is measured at widest portion of spear.

Another commonly used container holds 6-2.25# bunches (net weight 13.5#). Sizes for this pack include: Colossal--no more than 14 spears per bunch, Jumbo--no more than 15-20 spears, Extra Select--21-28 spears, Select--29-42 spears, Extra Fancy--43-67 spears, Fancy--68-100 spears, and Small--101+ spears per bunch.

In many packing plants as much as 80% of the production is packed out in 30# wood crates. There are also 27# cartons (domestic and export), 15# cartons of asparagus tips for domestic use, 13.5# cartons for mostly export and some 12# cartons.

Defects and loss of production can occur from: (1) wind causing curvature of the spears which grow several inches per day, (2) misshapen spears due to injury or high temperatures, (3) "flats" which may be due to the variation of



## ASPARAGUS (continued)

the output of a particular variety, (4) "flowering" or premature break of the bracts in spears especially in small spears, and (5) thrips injury which is due to insects.

Freezing temperatures during spear emergence can cause "frosting" or discoloration of the green color in spears. Asparagus should not be harvested when the spears are frozen (black ice) or damage may occur.

Overcutting will lead to a decline in production and a proliferation of small spears. During the third year, cutting may be continued the full season--about 60 days.

"Second year" fields may be harvested but cutting should be limited in time (2-4 weeks) and to the most vigorous plantings.

**POSTHARVEST HANDLING:** Asparagus is an extremely perishable product. It must be cooled quickly after harvest. Local packing sheds hydrocool to remove the field heat after packing. Cooled water (roughly 38F) is drenched over the packed cartons for approximately 15 minutes. Asparagus needs to be stored at 32-36F with 95+ relative humidity.

At high temperatures there will be a loss of natural sugar, flavor and vitamin C. Spears become tough and start to decay. If rapidly cooled and held at 36F, asparagus may be kept for about 3 weeks. Desiccation can occur rapidly if asparagus is not placed on wet pads as asparagus continues to elongate after harvest.

Bacterial soft rot will occur at either the tips or butts if immediate control of both temperature and humidity is not implemented.

Storing asparagus in nonventilated containers will result in spear toughening.

**NUTRITION:** Asparagus contains a substantial amount of vitamin C, vitamin A, and potassium. A 5-ounce serving contains only 20 calories excluding any dressings or butter.

