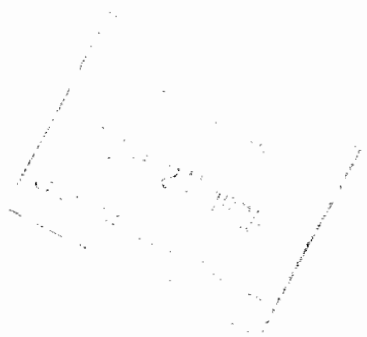
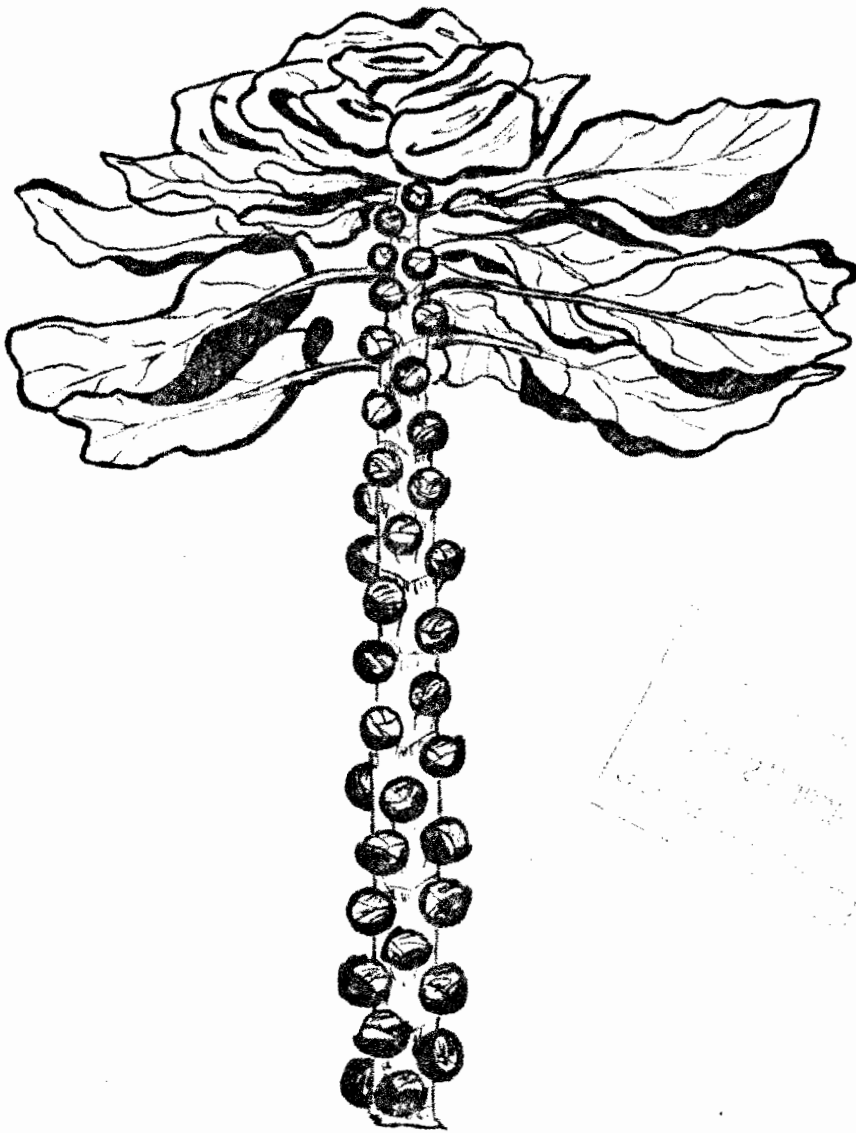


SAMPLE COSTS TO PRODUCE BRUSSELS SPROUTS (SINGLE MACHINE HARVEST METHOD)



AGRICULTURAL EXTENSION SERVICE - UNIVERSITY OF CALIFORNIA
SAN MATEO AND SANTA CRUZ COUNTIES - JANUARY 1968

BRUSSELS SPROUT PRODUCTION IN THE CENTRAL COAST DISTRICT

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The coastal district of California from Half Moon Bay to Castroville produces 90 per cent of the nation's crop of Brussels sprouts. Annual plantings range from 4,500 to 5,000 acres and are valued at \$5 to \$6 million.

REQUIREMENTS: Brussels sprouts grow best in well-drained, fertile soils that are free from salt and alkali. Soil pH around 6.5 is preferred by this crop. Brussels sprouts, like other members of the cabbage family, reach best quality if the crop develops and matures during cool weather. A three to five month harvest period, with relatively cool temperatures, is needed for multiple harvest varieties. Warm weather during sprout development results in soft or loose sprouts.

PLANTING: Seed beds in this area are planted from February to May. Plants are then transplanted (with the aid of 2, 3, or 4-row transplanters) into fields beginning in April. Harvest begins 90 to 110 days later, usually in late August, and will continue until February with peak production from September to November.

IRRIGATION AND FERTILIZATION: Immediately following transplanting, the fields are sprinkle irrigated, then sprinkler irrigation is continued every 14 to 18 days. Single harvest varieties are usually not irrigated within three weeks of harvest to prevent development of soft and/or tender sprouts. A complete fertilizer, usually 10-10-10 at the rate of 1,000 pounds per acre, is disked in before planting. The Jade Cross variety may receive 30 - 50 pounds nitrogen per acre as a side dressing or in irrigation water. Multiple harvest varieties may receive 15 - 30 pounds nitrogen in irrigation water every month until November.

VARIETIES: Jade Cross is the main variety used for single harvest. Only a small acreage of Sanda is single harvested. Sanda and Gravandeel are varieties that can be harvested once or twice by hand and then machine stripped, or picked four or five times by hand for the entire harvest period. The variety "Local" is harvested entirely by hand.

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HARVEST: Single harvest plants have their terminal growing point removed about six weeks before harvest. The leaves are also removed by hand just prior to harvest to aid mechanical sprout stripping. At present, there are three types of single harvesting techniques. A single vibrating knife is one method of sprout removal. This procedure requires three passes of the stalk past the blade. Stalks are cut by hand, placed on sleds, and transported to the stripping machine. This method does not require top leaf and bud removal.

The rotary knife method of harvesting requires tip preparation so the stalks can be inserted into the variable size orifice. This method requires only one pass to remove sprouts. These knife units have been placed on combines which also cut and elevate stalks to the stripper. However, most units are of hand-cut and carry method, described in the vibrating knife harvesting method.

The third method involves the use of a rotary knife machine of Dutch manufacture which does not require tip preparation. Butts are fed first into these machines. Only one pass through is required to remove all of the sprouts. There is a good deal of variation in methods of harvesting and handling sprouts among growers. Harvest machine costs vary from \$6,650 to over \$20,000.

CLEANING: Sprouts, either in bins or sacks, are hauled to central sheds and cleaned with the use of roller belts, cage drums and then hand sorted. The cost of cleaning varies greatly, depending upon where performed, yield, incidence of decay, and other defects. Total harvest and cleaning costs can vary from more than 2½ to less than 4 cents per pound. Costs rise rapidly when yield goes below 4 tons per acre.

PESTS: Plants are attacked by a number of diseases and insects. Clubroot, verticillium, and blackleg are three serious soil-borne diseases. Nematodes are a problem in many soils of the area. Proper fumigation can reduce nematode population and improve yields. For the latest pest control measures, contact your local farm advisor's office.

**SAMPLE COSTS TO PRODUCE BRUSSELS SPROUTS
IN SAN MATEO AND SANTA CRUZ COUNTIES
(SINGLE MACHINE HARVEST METHOD)**

Labor: Skilled-\$2.15/hr.; Common \$1.90/hr.
Yield: 4½ tons or 8,500 lbs./A
Variety: Jade Cross Spacing: 18" x 36"

40 H.P. C.D. tractor = \$1.50/hr.
30 H.P. wheel tractor = \$1.00/hr.

Operation	Hours Per Acre	Cash and Labor Cost Per Acre			Total
		Labor	Fuel & Repairs	Materials Kind and Quantity Cost	
CULTURAL COSTS					
Land Preparation	6.0	\$12.90	\$ 13.80		\$26.70
Growing plants	.5	1.08		Seed, fertilizer, soil fumigation, insecticides, etc. \$20.82	21.90
Pulling plants	16.0	30.40			30.40
Setting plants by machine - 5M	12.5	24.37	3.75		28.12
Cultivate	4.0	8.60	4.80		13.40
Hoe and weed	6.0	11.40			11.40
Irrigate	16.0	30.40	1.00	Power to pump (2 pumps) 14.00	45.40
Fertilize (contract)				Side-dress 1000 lbs. 10-10-10 (application cost \$2.25/A. ----- 40.90 120 lbs. ammonium sulfate/A sprinkler applied. ----- 3.72 120 lbs. ammonium nitrate/A sprinkler applied. ----- 6.00	40.90 3.72 6.00
PEST CONTROL					
Fumigation (contract applied)				D-D or Telone 60.00	60.00
Spray 1X (contract applied at \$2.25/A)				Guthion 5.63	5.63
Spray 1X (contract applied at \$2.25/A)				Guthion + Parathion 6.85	6.85
Spray 1X (contract applied at \$2.25/A)				Systox + Thiodan 12.37	12.37
Spray 1X (contract applied at \$2.25/A)				Phosdrin + Thiodan 13.70	13.70
Spray 2X (contract applied at \$4.50/A)				Systox 14.24	14.24
TOTAL CULTURAL COST	61.0	\$119.15	\$23.35	\$198.23	340.73
HARVEST COSTS					
Top	8.0	15.20			15.20
Tipping	15.0	28.50			28.50
Harvest (includes deleafing)	71.8	137.43	6.33		143.76
Cleaning, hauling	37.4	72.76	3.00		75.76
TOTAL HARVEST COSTS	132.2	253.89	9.33		263.22
CASH OVERHEAD					
Misc., office, etc.					30.18
Promotion, grading, research					21.25
Rent (cash)					70.00
TOTAL CASH OVERHEAD					121.43
TOTAL CASH COSTS					725.38
Management - 5% of 8,500 lbs. at 10.5¢ per lb.					44.63
Depreciation on tenant's field and irrigation equipment					134.04
Interest on tenant's field and irrigation equipment					29.78
TOTAL COST PER ACRE					\$933.83
Cost per lb. @8,500 lb. yield					10.99¢

TYPICAL EQUIPMENT AND IRRIGATION INVESTMENT FOR GROWING 75 OR MORE ACRES OF BRUSSELS SPROUTS

40 HP C.D. tractor	\$12,000	Stalk chopper	\$ 800
30 HP wheel tractor	4,500	Bee Gee scraper 10'	1,200
Truck (2½ ton with body)	6,000	Tool carrier	800
Pickup truck (2)	5,600	Irrigation pipe trailer	400
Disk 10-1/2'	1,500	Fork lift	5,000
Plow 4 bottom	1,000	Harvesting Equipment (includes strippers, generator, and trailer)	10,000
Cultipacker 12'	840		
Spike harrow or float	300	Pumps	
Duster 10 row	1,300	30 HP to pump from supply point	3,500
Sprayer S.P.	4,600	30 HP booster	3,500
Transplanter 3 row	1,200	Sprinkler pipe	
Liquid fertilizer injector	300	1,800 ft. of 6" @\$1.15	2,070
Lime spreader	500	2,600 ft. of 4" @\$0.70	1,820
Miscellaneous equipment	2,000		
Grader line	2,500	<u>TOTAL INVESTMENT</u> -----	\$74,430
Chisel cultivator	1,200		