ESTIMATES OF CROP LOSSES FROM DISEASES IN THE LOWER FRASER VALLEY OF BRITISH COLUMBIA, 1965'

H. N. W. Toms 2

Introduction

The Lower Fraser Valley from Chilliwack to the islands of the Fraser River delta is the most concentrated vegetable growing area in B.C. and grows approximately one-third of the produce required to supply the wholesale market of metropolitan Vancouver throughout the year. Although there is some overlapping, the local produce is replaced in winter, spring and early summer by comparatively low-priced imports from Texas, California and Mexico and in the late spring byearlier crops from adjacent Washington and Oregon. For individual crops the percentages produced in the Lower Fraser Valley or elsewhere in B. C. reaching the Vancouver market naturally vary considerably, but for the principal crops they are 20-40% of the total. The Vancouver market also receives substantial quantities of potatoes, field onions and tomatoes, andcucumbers from elsewhere in B. C. The remainder is imported.

Farms with large acreages of one crop, whether grown for processing or the fresh market are found mainly at a distance of 40 to 75 miles from Vancouver while the market gardens with more intensive cultivation are located within 25 miles of the metropolitan area. Such vegetables as beans, peas, cauliflower and broccoli for canning and freezing, beets, corn, potatoes and turnips, are grown as rotation crops on mixed, farms rather than in market gardens.

Market gardens are situated almost entirely on flat terrain adjacent to the present channels of the river or in old channels long since silted up. Soils in use are predominantly clays or loam clays (Ladner and Monroe types) or peat (muck soils of partially decomposed sphagnum moss) with an occasional garden extending up loam slopes. Since the war there has been a noticeable decrease in local vegetable production on the periphery of the metropolitan area owing both to the rising cost of land and to the conversion of farm and market garden land to residential and industrial uses. Their most noticeable feature, especiallyin those operated by Chinese tenant farmers, is their intensive cultivation. Crops are interplanted and, as one crop reaches maturity and is harvested, the other is already well established.

The growing season is considerably longer than in other parts of Canada. In favored locations the first crop of lettuce is transplanted in late March and cut early in June, spinach in early March and cut in mid-May, and bunching onions in mid-March and pulled in early June. In one district early potatoes are planted in mid-Marchand dug in mid-June. Some cole crops can be harvested into December in years when the fall is mild.

Raspberry and strawberry plantings are located mainly on clay and clay loam land, almost entirely on flat terrain. The larger plantings of highbush blueberry and all cranberry acreage are situated in bogs of senii-decomposed peat, being land for which no other use exists at the present time. A small percentage of the blueberry crop is grown on clay loarn. Italian prunes are rnainly grown on hilly terrain.

The 1965 growing season was relatively warm and dry and rainfall was so distributed that the optimum conditions for a build-up of diseases in general did not take place. There was a very low incidence of foliar diseases such as blights, molds, rusts and mildews.

Acknowledgment

Grateful acknowledgement is made to horticulturists of the British Columbia and Canada Departments of Agriculture, to an officer of the Plant Protection Division, and to an official of the B.C. Coast Vegetable Co-operative Association for supplying data. R. B. Porth, graduate student, Division of Plant Science, University of British Columbia, provided useful information on the incidence of disease in vegetables grown in muck soils.

---

1 Contribution No. 107 from the Research Station, Research Branch, Canada Department of Agriculture, Vancouver, B. C.

2 Plant Pathologist

Table 1. Estimated losses by crop and disease.

	Acres	Crop Value	Estimated Loss	
VEGETABLES				
BEANS - Includes processing:	1.777	$ 500,000		
Gray Mold (Botrytis cinerea)			2%	$ 10,000
Root Rots (Sclerotinia etc.)			5%	25, 000
Boron Deficiency			2%	10,000
BROCCOLI - Includes processing:	325	210, 300		
Bacterial Soft Rot			5%	10,500
Downy Mildew (Peronospora parasitica)			5%	10,500
Club Root (Plasmodiophora brassicae)			8%	27, 300
Boron Deficiency			1%	2,400
BRUSSELS SPROUTS - Includes processing:	160	111, 700		
Bacterial Soft Rot			25%	27,900
Downy Mildew (Peronospora parasitica)			5%	5, 580
[illegible]			2%	2,200
Boron Deficiency			3%	3, 300
CABBAGE	400	249,000		
Club Root (P. brassicae)			3%	7, 500
CAULIFLOWER - Includes processing:	425	311, 600		
Bacterial Curd Rot			5%	15, 600
Downy Mildew (Peronospora parasitica)			5%	15, 600
Club Root (Plasmodiophora brassicae)			2%	6, 300
Boron Deficiency			1%	3,100
Seedling troubles (Rhizoctonia etc.)			5%	15, 600
CUCUMBERS				
Field:	315	200,000		
Root Rot (Fusarium sp.)			5%	10,000
Scab (Cladosporium cucumerinum)			5%	10,000
Leaf Spot (Alternaria cucumerina and A. tenuis)			2%	4,000
Greenhouse:	---	185,000		
Misc. Soil Fungi			10%	18, 500
LETTUCE (450 acres)		340,000		
Sclerotinia Rot, Drop - Spring crop:	125		15%	14, 100
Bottom Rot (Rhizoctonia complex) - Summer:	175		10%	13, 200
Bacterial Soft Rot - Late crop:	150		10%	11, 340
ONIONS				
Bunching:	50	54,000		
Smut (Urocystis magica)			5%	2, 700
Downy Mildew (Peronospora destructor)			5%	2, 700
Bulb Crop:	145	170.000		
Neck Rot (Botrytis spp.)			15%	25, 500
PEAS - Table and Processing:	5,280	985,800		
Downy Mildew (Peronospora viciae)			1%	9, 850
Root Rot (Fusarium complex)			5%	49, 300

Table 1. Estimated losses by crop and disease, (continued)

	Acres	Crop Value	Estimated Loss	
POTATOES	5,000	1,000,000		
Black Leg (Erwinia phytophthora)			2%	5,950
Common Scab (Streptomyces scabies)			arbitrary	1,500
Bacterial Soft Rot (Erwinia carotovora)			"	15,000
Bacterial Ring Rot (Corynebacterium sepidonicum)			.3%	500
Storage Dry Rots (Fusarium spp.)			1.6%	30,000
Tuber Net Necrosis (Leafroll virus, developed in storage)			4%	75,000
Misshapen Tubers (Various causes)			15%	270,000
SPINACH - Spring crop:	12	7,500		
Downy Mildew (Peronospora farinosa)			20%	1,500
SQUASH - Winter stored:	100	40,000		
Black Rot (Mycosphaerella melonis)			20%	8,000
TOMATOES				
Field:	15	15,000		
Early and Late Blights			20%	3,000
Blossom-end Rot			5%	750
Greenhouse:	---	200,000		
Leaf Mold (Cladosporium fulvum)			5%	10,000
Tobacco Mosaic Virus			10%	20,000
Verticillium Wilt (V. dahliae)			5%	10,000
TURNIPS AND RUTABAGAS	90	55,000		
Boron Deficiency			2%	1,100
TREE FRUITS				
ITALIAN PRUNE	300	60,000		
Black Knot (Apiosporina morbosa)			20%	12,000
SMALL FRUITS				
BLUEBERRY	1,300	600,000		
Cane Canker (Godronia cassandrae f.)			15%	90,000
Blossom Blight and Mummy Berry (Sclerotinia vaccinii-corymbosi)			10%	60,000
Nursery Propagation Beds (Misc. Twig and Root Rots)			1.6%	10,000
CRANBERRY	500	255,000		
Cotton Bali (Sclerotinia oxycocci)			trace	50
Fruit Rots (Misc. organisms)			1%	2,550
RASPBERRY	1,700	2,520,000		
Fruit Rot (Botrytis cinerea)			2%	50,400
Root Rots (after December 1964 freeze injury)			10%	214,200
STRAWBERRY	300	300,000		
Fruit Rot (Botrytis cinerea)			10%	30,000
Red Stele (Phytophthora fragariae)			10%	30,000
Powdery Mildew (Sphaerotheca macularis)			2%	6,000
Root Rot Complex			5%	15,000

Estimated total losses $1,342,070