

Impacts of Oil Price Hike on Greenhouse Farming in Korea

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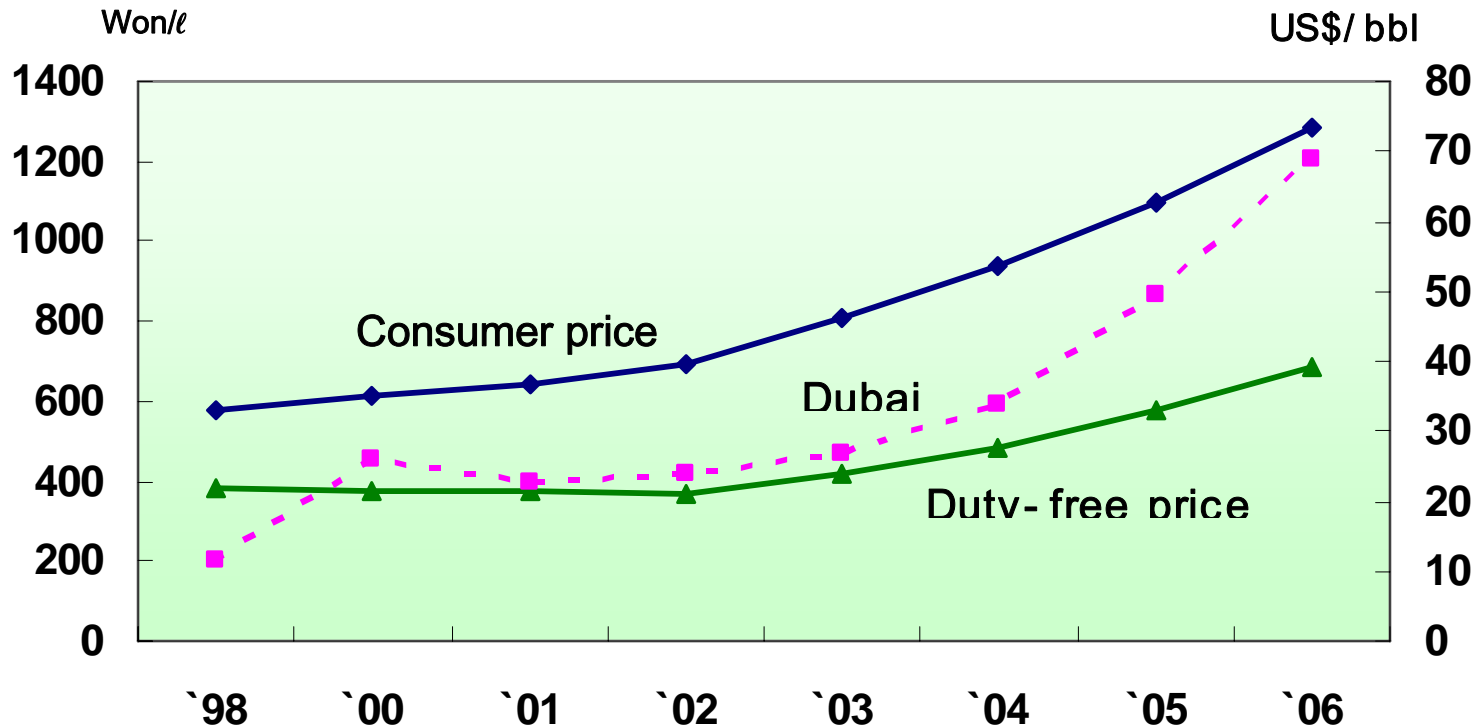
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- Cost Share of Energy Input
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- Facilities Sensitive to Fuel Price?

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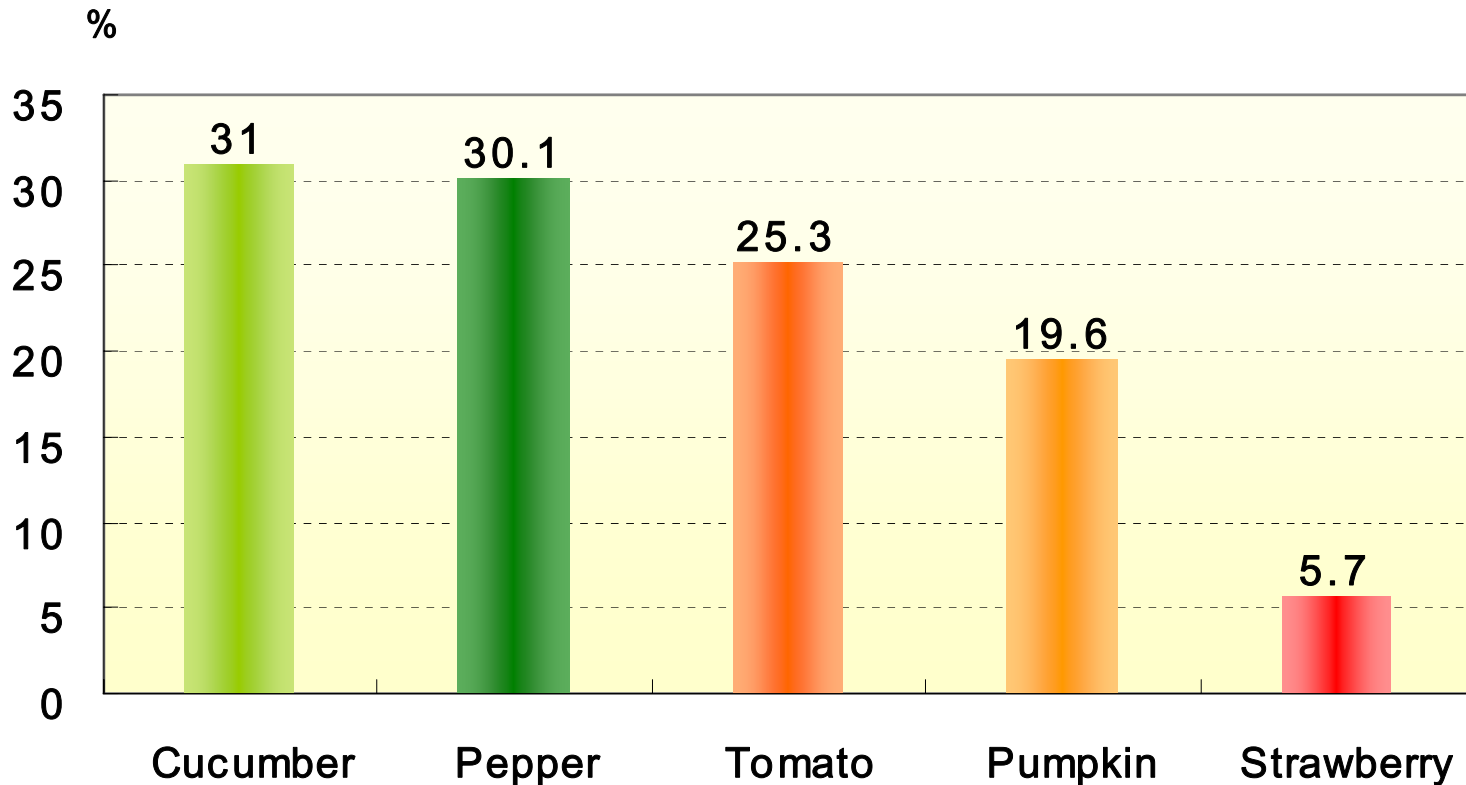
Trends in Oil Prices



Source: Rural Development Administration(2004).

- ✓ Crude oil price increases 40% in 1st quarter this year.
- ✓ Domestic oil price follows it, going up 20%.

Cost Share of Energy for Greenhouse Cultivation



Source: Rural Development Administration(2004)

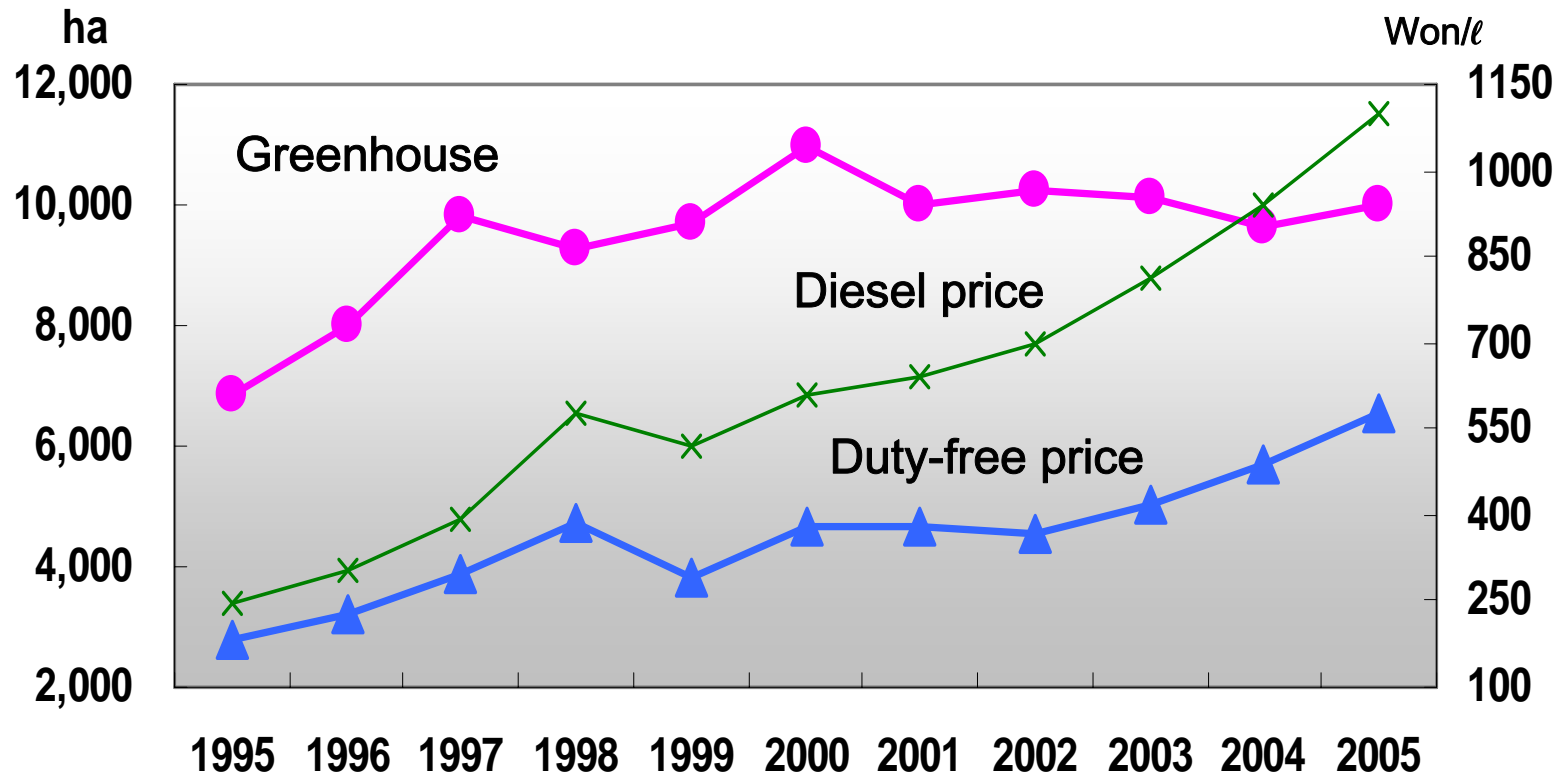
- ✓ Share of energy cost, other sectors
 - grain 2%, fruit 3%, field veqt 2%, livestock 1%

Changes in Operating Costs upon Changes in Oil Price

Commodities	Scenarios on Change Rate of Oil Price		
	10%	30%	50%
Cucumber	3.1	9.3	15.5
Pepper	3.0	9.0	15.0
Tomato	2.5	7.6	12.7
Pumpkin	2.0	5.9	9.8
Strawberry	0.6	1.7	2.8

Source: Rural Development Administration(2004)

Oil Price and Greenhouse Acreage



Source: MAF, NSCF

✓ Irreversibility of facilities

Acreage Responses

	Cucumber	Tomato
constant	3.724 ^{**}	16.863 ^{**}
prev. year' acreage	0.819 ^{***}	
prev. year' price	0.783 ^{***}	0.367 ^{**}
<i>oil price</i> (planting period)	-0.764 ^{***}	-1.221 ^{***}
prev. pumpkin price	-1.275 ^{***}	
dummy(1997)	-0.435 ^{***}	
R ²	0.91	0.71
LM test/ DW	0.07	1.68
F statistics	20.4	8.0
Estimation method	LS	PLS
n	16(1989-04)	18(1996-04)

Note: ***, **, and * denote significant at the 1, 5, 10 percent level.

Source: Lee et al. (2005)

Supply Responses

	Cucumber	Pumpkin
constant	3.952	-0.667
prev. year' quantity	0.413 ^{***}	0.366 ^{**}
prev. year' price	0.203	0.437 ^{***}
prev. year' pumpkin price	-0.199 ^{**}	
<i>oil price</i> (planting period)	-0.207 ^{***}	0.389 ^{**}
solar radiation/ precipitation	0.354 ^{***}	-0.049
dummy(2000.3)		0.306 ^{**}
R ²	0.68	0.95
Durbin h	-0.183	-0.208
F statistics	14.5	55.3
Estimation method	PLS	PLS
n	39(1992-05)	18(1997-05)

Notes 1) ***, **, and * denote significant at the 1, 5, 10 percent level.

2) cucumber for winter and pumpkin for spring.



Thank you!



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