

# Economic Considerations Regarding Markets for Water in the Maltese Islands

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# The Economic Significance of Water

- ✓ Demand : the amount of water consumed
- ✓ Supply : the amount of water produced
- ✓ Water management options



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# The Demand

- ✓ Billed Water Consumption : ***18Mm<sup>3</sup>p.a***
- ✓ Estimated Water Consumption : ***38.6Mm<sup>3</sup>p.a***  
(includes private production).Of these, ***14.5Mm<sup>3</sup>***  
are consumed by Agriculture
- ✓ Apparent losses: ***7.3Mm<sup>3</sup>p.a*** ,  
Real losses: ***11.3Mm<sup>3</sup>p.a***

*(Based on WSC data for 1999/2000)*



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# The Demand

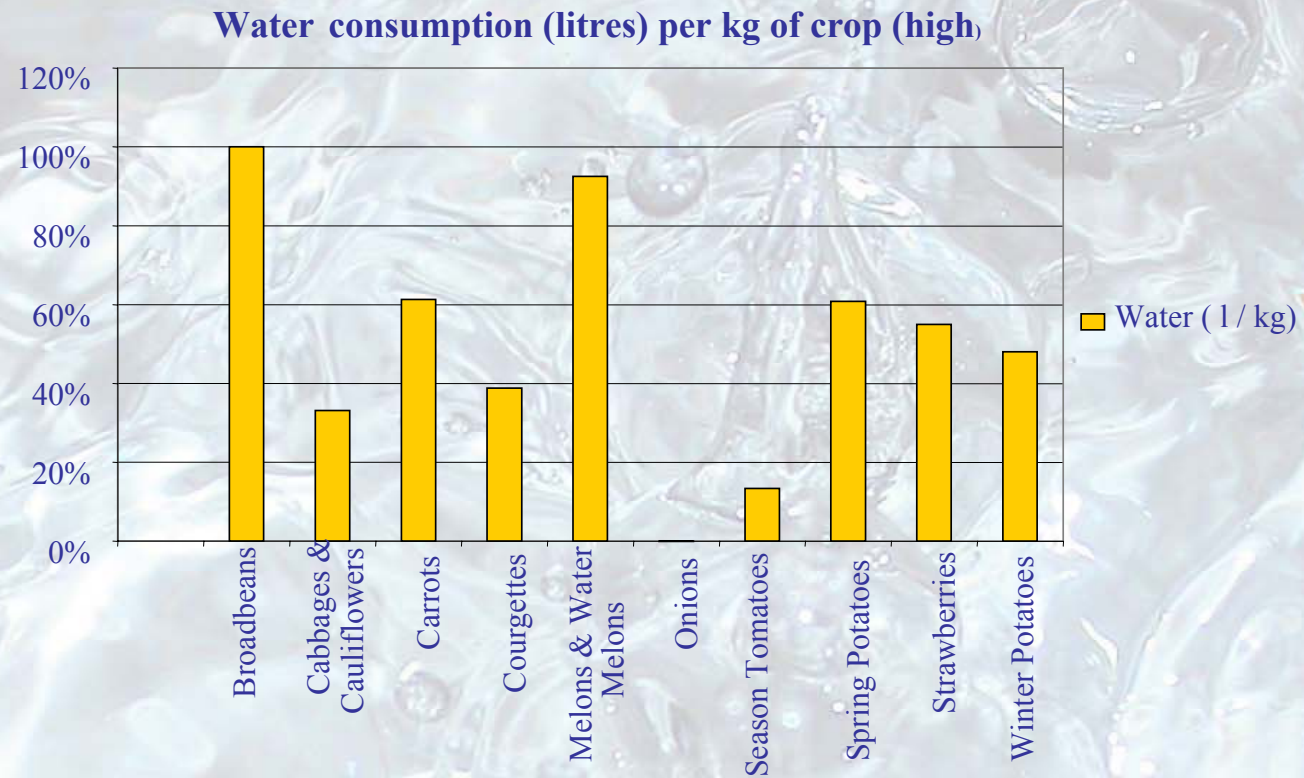
The optimal use of water requires reliable data on:

- ✓ the value of water used per Lm100 of output
- ✓ the net benefit per industrial use
- ✓ the response of users to water tariffs



# Example. Water in Agriculture for Low and High Output

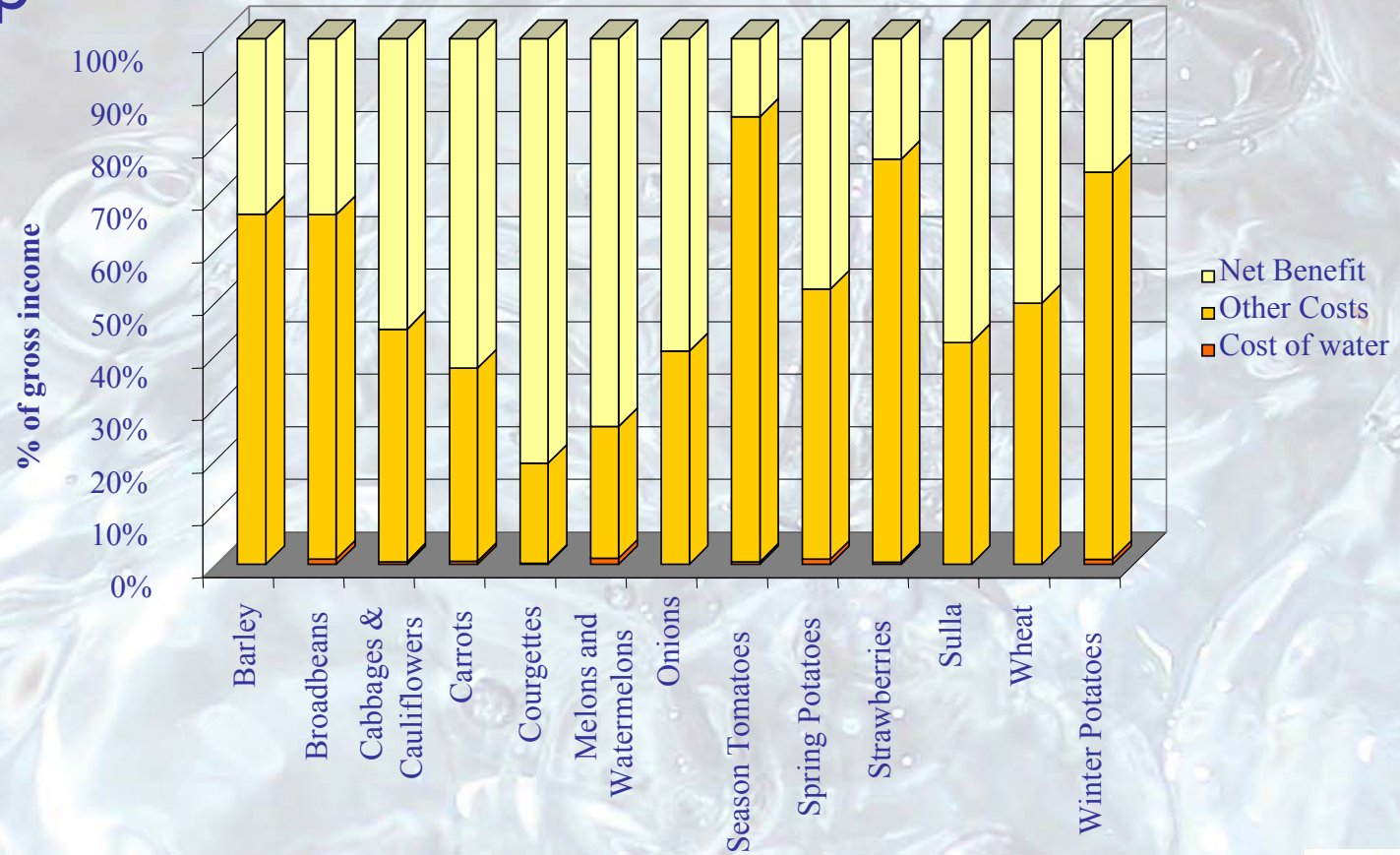
✓ Water consumption (Ltrs) per kg of crop



# Example. Water in Agriculture for Low and High Output

✓ Cost of water, other costs and net benefit per crop

Malta: cost of water, other costs and benefits, for selected crops (high)



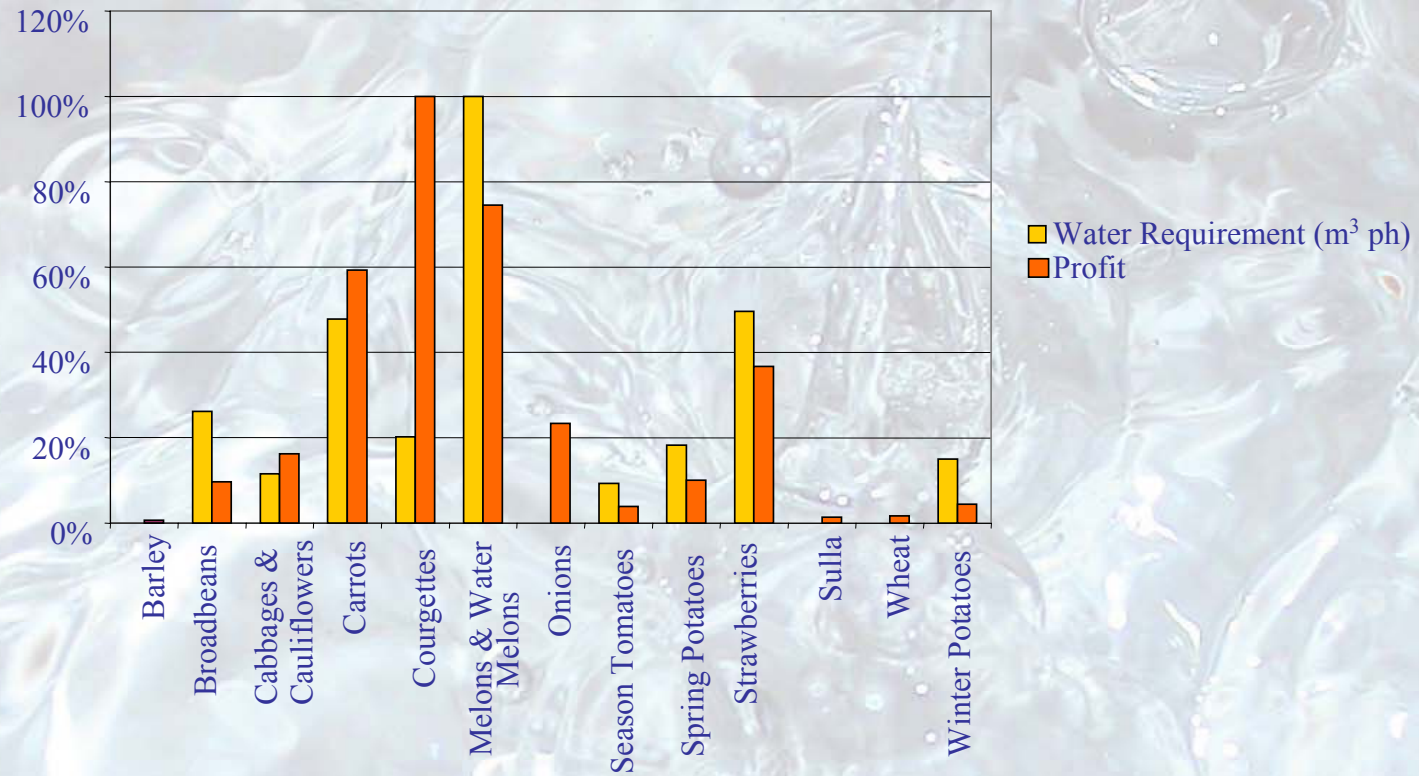
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# Example. Water in Agriculture for Low and High Output

## ✓ Water consumption and net benefit

Valuing irrigation water (high)



# Price and Income Elasticity of Demand (Domestic use)

- ✓ Short Run : -0.28 (similar to that observed abroad)
- ✓ Long Run : -0.37 (indicates that consumers tend to adapt their consumption to prices over time)
- ✓ Income Elasticity : 0.2435





## Sources of Supply

Potable Source	Amount of water / Mm <sup>3</sup>	
	1999/2000	2002/2003
Ground Water	19.26	15.75
Reverse Osmosis	17.34	18.22
<b>Total</b>	<b>36.60</b>	<b>33.97</b>

On average, the billed consumption of water, is 18Mm<sup>3</sup> per annum

Other Source	Amount of water / Mm <sup>3</sup> p.a
Treated Sewage Effluent	2.5
Additional Future Sources	23.5



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# Water Tariffs in Malta

- ✓ A rising block water tariff system
- ✓ A service charge paid independently of water consumed
- ✓ Domestic, industrial and commercial users can apply for rebates
- ✓ Additional subsidies available to vulnerable consumers



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# The Unit Cost of Water

The Balanced Budget Method is used, whereby:

$$T_t = \frac{TOE_t + (\text{Higher of Debt Service/Dep'n}) + (wc_t - wc_{t-1})}{Q_t}$$

$$= 55c/m^3$$

$$= 57c/m^3 \quad (\text{if the unavoidable background leakages, amounting to } 300m^3/p.h., \text{ are accounted for})$$



## Subsidies

- ✓ Producers in:
  - tourism sectors
  - manufacturing sectors
  - commercial sectors

cover unit costs.

- ✓ Domestic users and farmers are charged a subsidised rate. In the former case, subsidies vary inversely with the size of a household.

