

## Transportation Emissions Calculations

### Producer to Supplier

Origen	Kilometers to Supplier	Kg CO2 emitted
Almería	65.5	11.79
Murcia	166	29.88
Sevilla	454	81.72
Grenada	206	37.08
Castilla la Mancha	290	52.20

Kg CO2 per km driven by average lorry:  
 $180 \text{ gCO}_2/\text{km} \times \text{distance} / 1000 = \text{kg CO}_2$

### Supplier to Sunseed

Origin	Kilometres to Sunseed	Kg CO2 emitted
Sorbas	7	1.3

Kg CO2 per km driven by Fiat Scudo:  
 $186 \text{ gCO}_2/\text{km} \times 7/1000 = 1.3 \text{ kg CO}_2$

### Local Farmer to Sunseed

Origin	Kilometres to Sunseed	Kg CO2 emitted
Jacki's Farm	3	0.56

Kg CO2 per km driven by Fiat Scudo:  
 $186 \text{ gCO}_2/\text{km} \times 3/1000 = 0.56 \text{ kg CO}_2$

Airline travel estimate for Argentina to Murcia, Spain:  
 $(10065.20 \text{ km} \times 0.34) + 104 = 3526.20 \text{ kg CO}_2$

## Production Emissions Calculations

### Sunseed Produce

Item	Amount (kg)	Production	Transportation
Cabbage	1.9	0	0
Leeks	1	0	0
Onion (spring)	0.75	0	0
Beans (broad)	7	0	0
Carrots	8	0	0
Garlic	5	0	0

### Local Farmer Produce

Item	Amount (kg)	Production	Transportation
Courgettes	9.6	0	0.56
Corn	2.6	0	0.56
Celery	2.6	0	0.56
Pumpkin	1	0	0.56

Onions	0.8	0	0.56
Beetroot	7.4	0	0.56
Aubergines	0.4	0	0.56
Tomatoes	2.4	0	0.56
Peppers	0.1	0	0.56
Beans	0.7	0	0.56
Cucumbers	2.8	0	0.56

#### Regional Produce

Item	Amount (kg)	Production (kg)	Transportation (kg)
Pumpkin	8	11.48	11.79 + 2.6
Mushrooms	2.8	4.14	29.88 + 2.6
Fruit (seasonal)	7.6	11.69	11.79 + 2.6
Carrots	14	20,72	11.79 + 2.6
Cauliflower	9.5	14.06	11.79 + 2.6
Onions	15	22.20	11.79 + 2.6
Potatoes	10	14.80	37.08 + 2.6

Est. 2 kg CO2 emitted per kg of an average fruit/vegetable product, 75% of which is from production. Kg CO2 emitted from production of kg of product:  
 $2 \times 0.75 = 1.48 \times \text{kg of product}$

#### Processed Products

Item	Amount (kg)	Production (kg)	Transportation (kg)	Frequency Purchased (x per month)
Rice	25	54.50	29.88	1
Lentils	5	10.90	29.88	1
Garbanzos	5	10.90	52.20	1
Flour (rye)	25	54.50	29.88	1
Flour (wheat)	25	54.50	29.88	1
Spelt	5	10.90	29.88	1
Sugar	5	6.50	3526.20 + 29.88	1
Salt	4	5.20	81.72 + 2.6	1
Olive oil	9	11.70	11.79 + 2.6	2
Sunflower seed oil	4.5	5.85	146.88 + 2.6	2
Vinegar	4.5	5.85	100.26 + 2.6	2

Est. 2.9 kg CO2 emitted per kg of an average grains (rice-spelt) product, 75% of which is from production. Kg CO2 emitted from production of kg of product:  
 $2.9 \times 0.75 = 2.18 \times \text{kg of product}$

Est. 1.7 kg CO2 emitted per kg of an average oils, sweets, condiments (sugar-vinegar) product, 74% of which is from production. Kg CO2 emitted from production of kg of product:  
 $1.7 \times 0.74 = 1.3 \times \text{kg of product}$