

The background of the slide features a hand in a light-colored, striped shirt sleeve, holding a white cloth and wiping a blue and white globe of the Earth. The globe is partially obscured by several semi-transparent, circular icons containing the chemical formula 'CO2'. The overall theme is environmental responsibility and climate change mitigation.

ECO-RESPONSIBILITY INITIATIVE: “MURCIAN AGRICULTURA AS A CO2 SINK”. LESSCO2 LAB

Dr. Francisco Victoria Jumilla

Coordinator of the “Climate Change
Observatory of the Region of Murcia”

Region of Murcia. Orchard of Europe

117,000 studied
irrigation Ha (from the total of 150,000)

PRODUCE:

- 3 million tons of food (20% of the exports of fruits and vegetables in Spain)

REMOVE FROM THE ATMOSPHERE:

- More than a million tons of CO₂





Región de Murcia

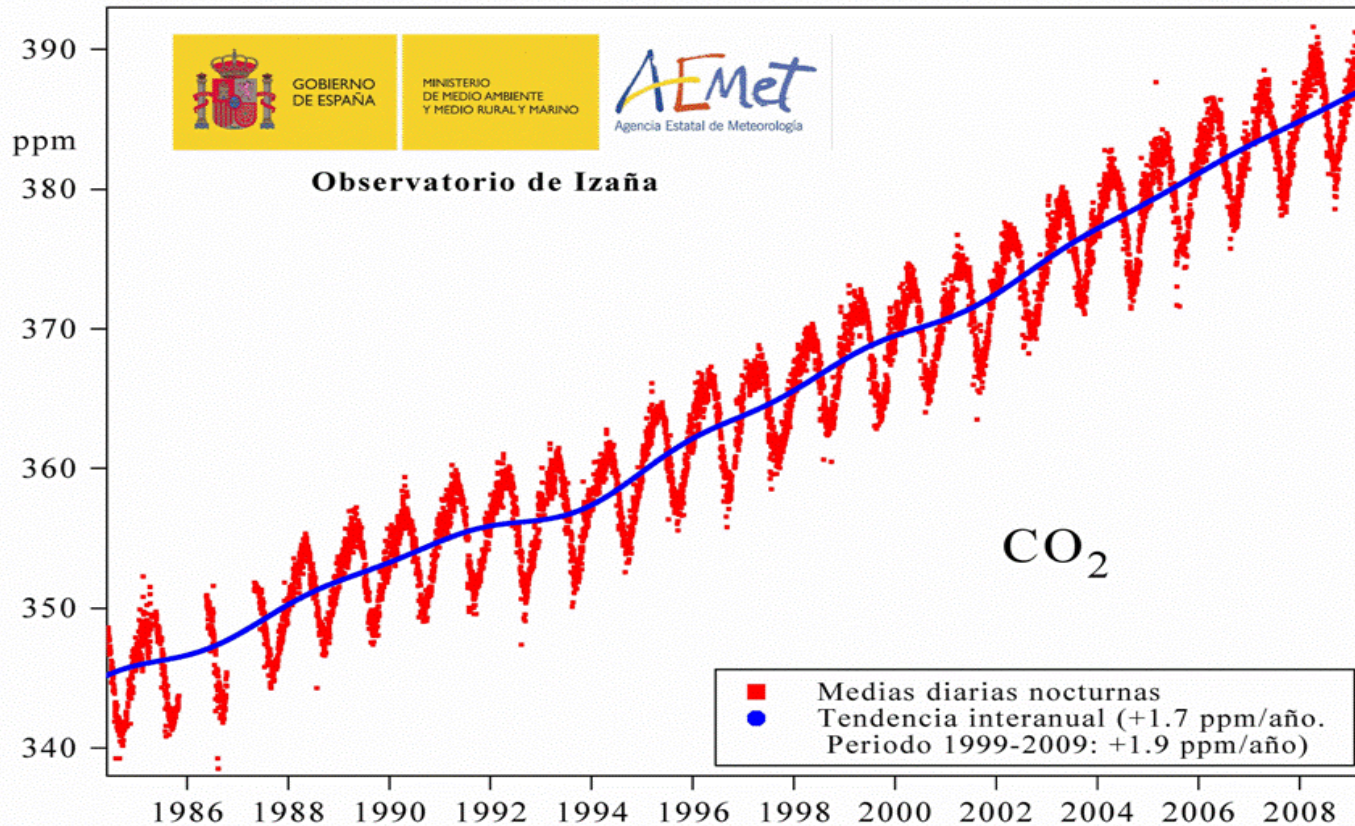
CLIMATE CHANGE: ENVIRONMENTAL CHALLENGE WHICH MOST WORRIES EUROPEANS





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CO₂: main greenhouse effect gas



Spanish Government.

Ministry of the Environment and Rural and Marine Affairs. Meteorology State Agency.

Izaña Observatory.

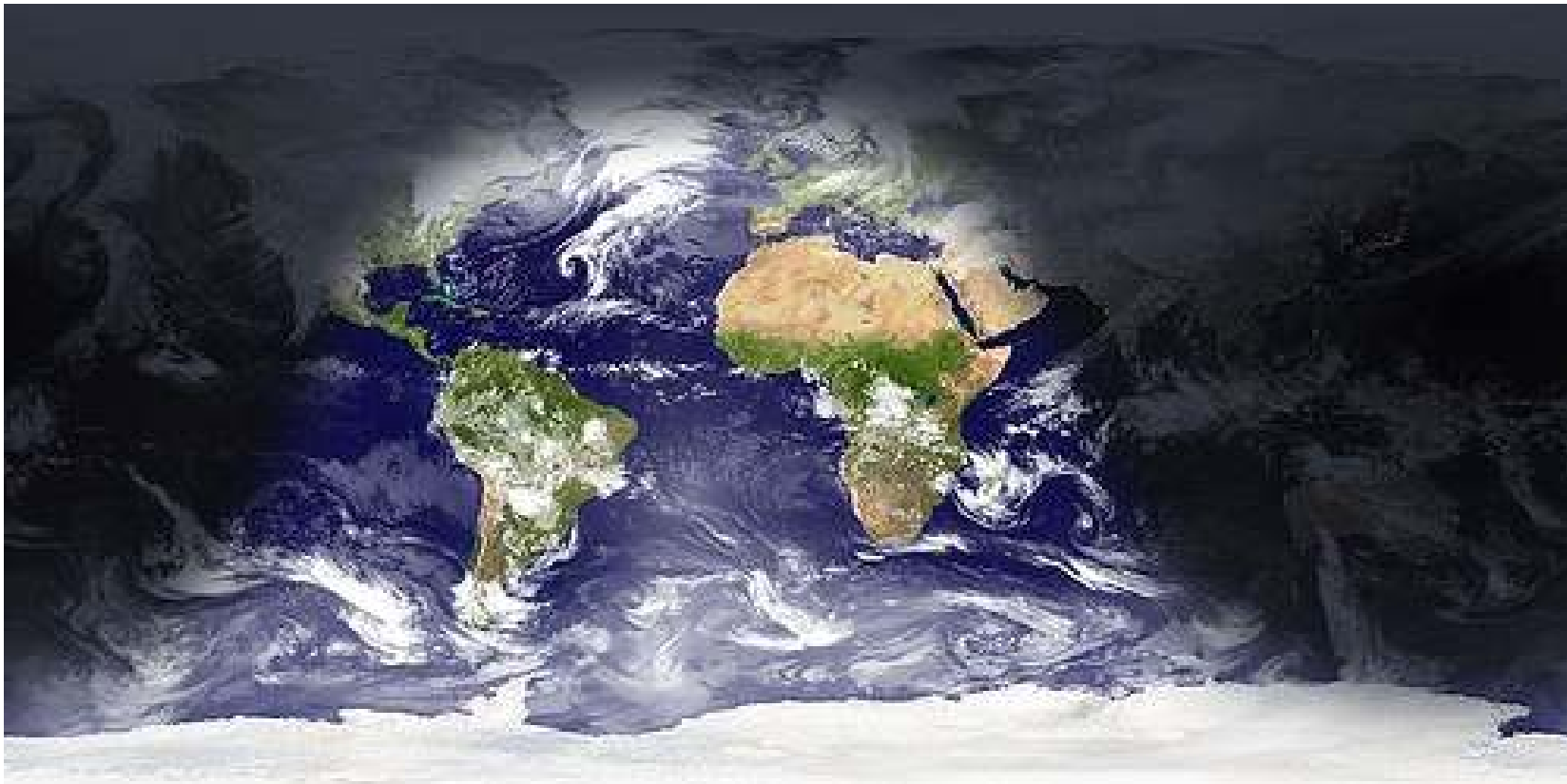
Night daily averages.

Interannual trend (+1.7 ppm/year). Period 1999-2009 (+1.9 ppm/year)



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The concentration of CO₂ is uniformly distributed in the atmosphere regardless of where the emissions are produced

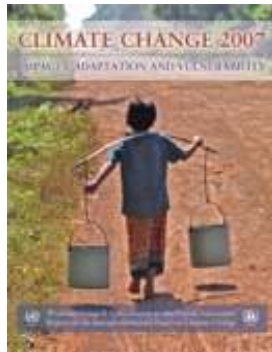
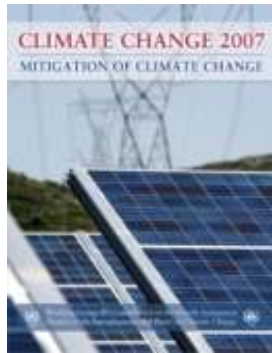
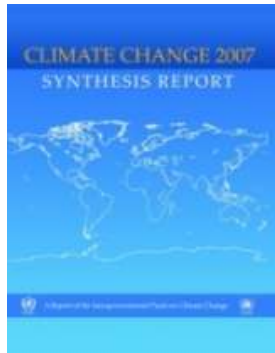


2



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Fourth Assessment Report (AR4) of United Nations



More than 50 journals demand from governments measures against the climate change



COP 15 COPENHAGEN

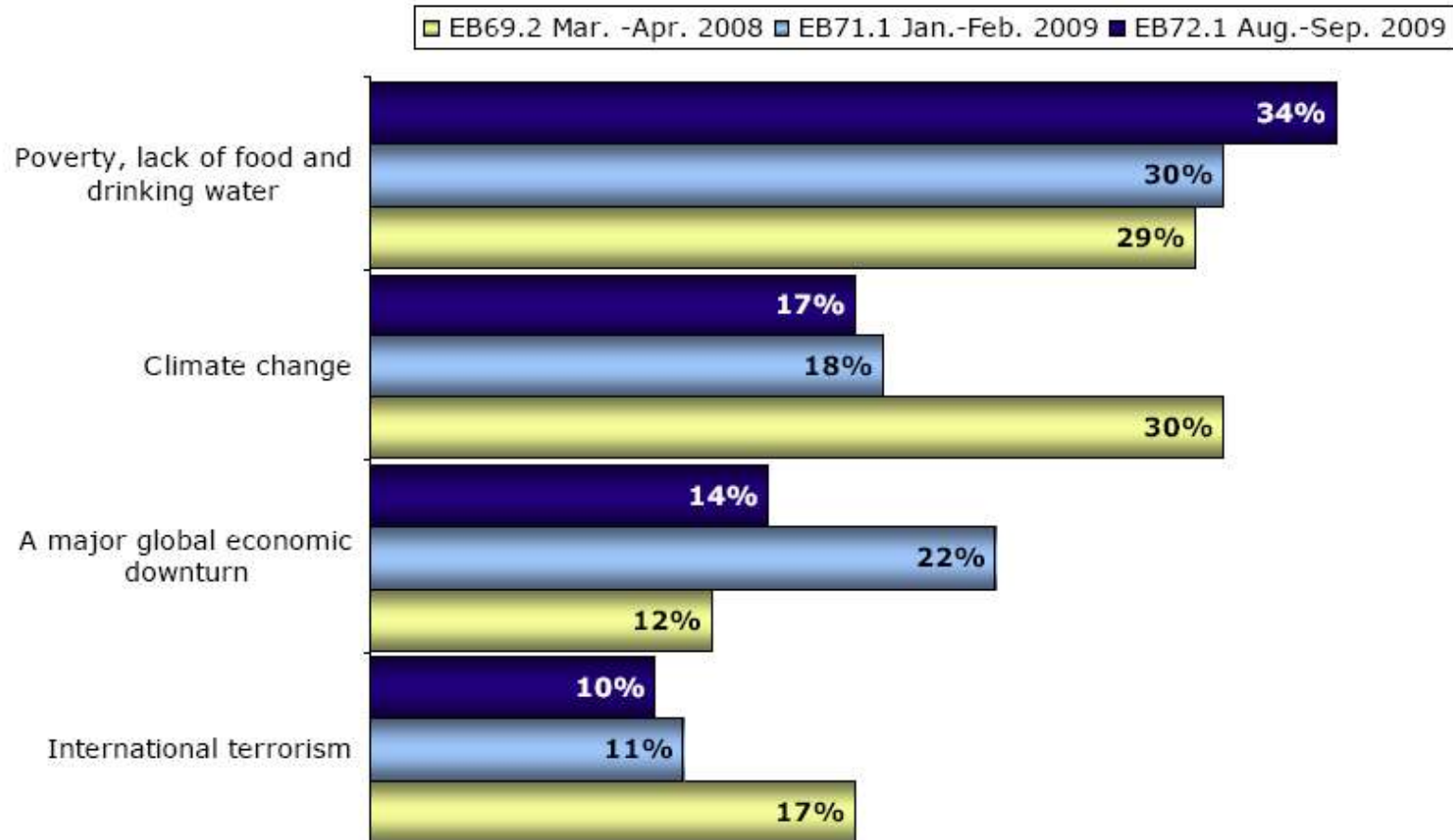


Europeans' attitudes towards climate change

Fieldwork: August - September 2009

Publication: November 2009

In your opinion, which of the following do you consider to be the most serious problem currently facing the world as a whole? Firstly?
 % EU





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ANSWER FROM THE MARKET TO THE CONCERNS OF THE EUROPEAN CONSUMER





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Climate change: fundamental element of the Corporate Social Responsibility

Communication campaigns from some supermarket chains



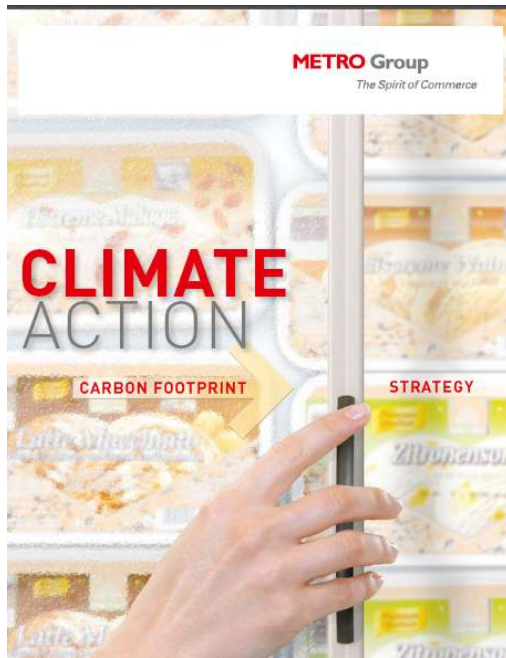
MIGROS



Die klimafreundlichen Produkte der Migros

Klimafreundlich einkaufen leicht gemacht: Das nachhaltige Label «approved by climatop» zeigt Ihnen ohne komplizierte Vergleiche, welche Produkte im Migros-Sortiment besonders klimafreundlich sind.

YOUR M&S



METRO Group
The Spirit of Commerce

CLIMATE ACTION

CARBON FOOTPRINT

STRATEGY

DIE UNTERNEHMENSGRUPPE TENGELMANN

FIRST TENGELMANN CLIMATE-FRIENDLY STORE - THE SUPERMARKET OF THE FUTURE

The fossil fuel reserves of our planet are finite and we would be well advised to use them carefully. In order to prevent the "energy from running out" we should now be investing in the development of renewable energy sources and energy-efficiency programmes must be developed and implemented.

Meantime, there are innovative and much more climate-friendly solutions now available to replace many of the energy-intensive technologies used in the past. In a pilot



YOUR M&S

Plan A



We are making progress to cut carbon emissions

Combating climate change: a Group priority

Determined to aid the fight against climate change, the Group has been measuring greenhouse-gas emissions from its operations since 2004. The results have been used to identify our major sources of emissions and draft a plan of action based on three priority tasks:

- Improve building energy efficiency;
- Upgrade refrigeration facilities so as to limit refrigerant emissions;
- Reduce emissions generated by the transport of goods.

NOURISHING A WORLD
GROUPE OF DIVERSITY
Casino





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72 % of the Europeans go for the obligation to express the carbon footprint of the products



working with the Carbon Trust

220g
CO₂

per carton

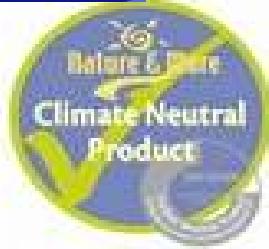
The carbon footprint of this juice is 220g per carton and we have committed to reduce it



working with the Carbon Trust



The market answers



working with the Carbon Trust



Labels Proposed for Beer Cans by '09



Protect our planet





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Emissions for which the citizen is directly responsible

| Country | CO ₂ t/citizen |
|----------------|---------------------------|
| Germany | 2.65 |
| United Kingdom | 2.54 |
| Netherlands | 2.33 |
| Spain | 1.68 |

Source: European Environment Agency



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The idea to compensate the emissions that cannot be avoided is extended



- > Cómo contratar tu seguro
- > Nuestros seguros uno a uno
- > Temas de Salud
- > Información corporativa
 - > DKV en España
 - > DKV en el mundo
 - > Grupo ERGO
 - > Patrocinio deportivo
 - > Programa de Arte DKV
 - > Webs del grupo
 - > Trabajar en DKV
 - > Informe de Sostenibilidad 2008
 - > Anteriores informes de sostenibilidad on line
- > Empresa Responsable
- > Sala de Prensa
- > Preguntas frecuentes



Información corporativa > Anteriores informes de sostenibilidad on line > Informe de Sostenibilidad > Huella medioambiental > Caso de estudio: Caso Cero CO2 >

Caso de estudio

Caso Cero CO2

Distintos estudios han asociado el cambio climático con las actividades humanas y la emisión de gases de efecto invernadero. DKV, aún consciente de que su actividad no es intensiva en emisiones de efecto invernadero, ha asumido voluntariamente un compromiso con el medio ambiente, desarrollando las acciones pertinentes para disminuir el impacto de su actividad sobre el clima.

Como primer paso hacia una política activa en relación con el cambio climático, DKV ha realizado una memoria de las emisiones generadas en 2007 para identificar y cuantificar dichas emisiones y su impacto.



Das Auto.

movimientoBlueMotion.co

Programa CO₂ Neutral

¿Qué es? Paquetes CO₂ ¿Por qué?

Bosque BlueMotion

Tecnología Colaboradores Día de la Tierra Movimiento BlueMotion

Consulta la gama de paquetes CO₂ Neutral:

| ÁRBOLES* | BM0 | BM1: 10.000 Km | BM2: 20.000 Km | BM3: 30.000 Km | BM4: 100.000 Km | BM5: 150.000 Km |
|---------------------------|-----|----------------|----------------|----------------|-----------------|-----------------|
| FOX | 5 | 10 | 24 | 48 | 72 | |
| POLO BLUEMOTION 17** | 4 | 7 | 17 | 34 | 50 | |
| POLO | 5 | 10 | 23 | 46 | 68 | |
| POLO GTI | 7 | 13 | 32 | 63 | 94 | |
| GOLF BLUEMOTION 17** | 8 | 20 | 40 | 60 | | |
| GOLF | 10 | 25 | 50 | 74 | | |
| GOLF GTI / R32 | 14 | 34 | 67 | 101 | | |
| GOLF VARIANT | 10 | 25 | 49 | 73 | | |
| GOLF PLUS BLUEMOTION 17** | 9 | 22 | 43 | 64 | | |
| GOLF PLUS | 11 | 26 | 52 | 77 | | |

CO₂ Neutral

we_move

© Volkswagen 2008 - Tecla legal

Coca-Cola España

Corporativa | Instituto Coca-Cola de la Felicidad | Fundación | Voluntariado | Vida Activa, Salud y Bienestar | Participa

Compromiso global | Compromiso local | Misión Ambiental | Consejo Adm. | Restauración forestal | Nuestro compromiso con el agua | Prevención de incendios | Proyecto Guadara | Conector biológico | FSC | La Hora del Planeta | Live Right! Week | Hiperlogos

Restauración forestal

Especies en peligro

Desde 2001 Coca-Cola ha contribuido en diversos proyectos de reforestación junto a WWF España. Comprometidos con el medio ambiente, los empleados de Coca-Cola España han efectuado un excelente trabajo como voluntarios, plantando más de 27.000 árboles en distintos bosques de nuestro país, lo que supone una mejora para nuestro entorno, ya que cada árbol puede absorber hasta 48.000 kg de CO₂.

El 31 de febrero de 2009 Coca-Cola ha convocado una vez más a todos los empleados y familiares, que quieren sentir, a la Sierra de Rincón (Madrid) para participar activamente en la Reforestación del Hayedo de Huerto y así entender mejor la importancia de conservar nuestros bosques. A esta invitación acudieron nada menos que 140 personas que llegaron a plantar un millar de árboles.

Entre otras recientes acciones de reforestación destacan las realizadas en La Laguna de Campo (Madrid) y en la zona de Cotabado en el parque de San Juan de Sacro (Borriobeneja), una de las zonas más afectadas por los incendios estivales.

Con la plantación de especies vegetales autóctonas, construcción de pequeños diques en los fondos de las vaguadas, los voluntarios, han conseguido restaurar un monte quemado y mejorar así de las hectáreas más degradadas del Parque Regional del sur este de Madrid.

Desde hace años los empleados de la Compañía vienen involucrándose en la conservación de zonas castigadas. Gracias a su esfuerzo y al de todos nosotros, nuestro entorno más cercano se ve beneficiado. (Todo un ejemplo de compromiso con el medioambiente).

¡Ver galería de fotos!

¡Más información WWF!

1880

KLM Royal Dutch Airlines

Book a flight | Manage my Booking | Check-in online | Hotels, cars and more | Timetable

About KLM: Fly CO₂ neutral

Fly CO₂ neutral

CO₂ zero fly CO₂ neutral



Región de Murcia

The compensation allows to **neutralise our emissions** by means of efforts made when collecting CO₂ in any other place, just what eco-efficient agriculture can offer



Source: University of Murcia (*Pinus halepensis*); Spanish National Research Council (*Citrus limon* and *Latuca sativa*)



In general, the net speed of fixation of CO₂ is higher in agricultural crops than in natural vegetation.



Región de Murcia

AGRICULTURE IN MURCIA AS A CO₂ SINK

**INSTITUTIONAL INITIATIVE TO
PROMOTE THE COLLECTIVE
COOPERATION IN THE
MITIGATION OF THE CLIMATE
CHANGE**



Región de Murcia

“Murcian Agriculture as a CO₂ sink”, is an initiative:

- **From the Government:** Government of the Region of Murcia.
- Which **connects** with the **environmental concerns** of the consumer.
- Based on **voluntary adhesions**.
- Transparent, viewable through the Web **www.lessco2.es**.
- Based on **carbon balance** and not on the carbon footprint.
- Which uses as a methodology to calculate the carbon balance the international standard **ISO 14064:2006**.
- In which the CO₂ fixation capacity by crops is determined by **research centres and public universities**.
- Which requires a commitment for the **continuous improvement** of the carbon balance.
- Which requires the official verification by entities for obtaining the **LessCO2 label**.



Companies adhered to the Initiative

Región de Murcia

- A. TERESA HERMANOS, SA
- AGRÍCOLA AGUILEÑA SAT
- AGRÍCOLA SANTA EULALIA, SL
- AGROYAFER COOP
- ALIMENTOS DEL MEDITERRÁNEOS, S.COOP.
- ANTONIO CARRILLO E HIJOS, S.A.
- BIO CAMPO SLU
- BODEGA COOPERATIVA SAN ISIDRO JUMILLA
- BODEGAS DEL ROSARIO
- CAMPO DE LORCA, SCL
- CANARAFLO SCL
- CASA ALTA S.COOP
- COAGRAL SCL
- COALOR, SCAL
- COBUCO, SCL
- COOP CAMPOS DE JUMILLA, SCL
- COOP DEL CAMPO VIRGEN DE LA ESPERANZA, S.COOP
- COOPERATIVA AGRA SCL
- COOPERATIVA AGROEURO
- EL CHAPITEL
- EXPOÁGUILAS COOP
- FRUCA MARKETING, SL
- FRUTAS CARAVACA
- FRUTAS ESTHER, SA
- FRUTAS Y CÍTRICOS DE MULA, SCL
- FRUVEG, SC
- Grupo G`S
- GRUPO HORTOFRUTÍCOLA MURCIANA DE VEGETALES, OPFH 693,SL
- HORTAMIRA, SCL
- HOYAMAR COOP
- KERNEL EXPORT, SL
- LA HONDONERA, SCL
- LA SULTANA
- LA VEGA DE CIEZA, SCA
- LOOIJE AGUILAS, SL
- LOS PRADOS DE CALASPARRA
- MOLINENSE PROD NAT
- MUNDOSOL, SCL
- PROCOMEL, SL
- SACOJE SDAD COOP
- SAN ISIDRO
- SAT AGROTER Nº 1936
- SAT BLANCASOL
- SAT CAMPOTEJAR DEL SEGURA
- SAT Nº 2457 SAN CAYETANO
- SAT Nº 9504 URCISOL
- SAT Nº 9836 MU AGRICULTURA Y EXPORTACIÓN (ANVID)
- SAT Nº 9994 CAMPOSEVEN
- SCA VALLE DE ABARÁN
- SOCIEDAD COOPERATIVA AGRÍCOLA DEL SURESTE
- SOCIEDAD COOPERTATIVA LA PLEGUERA
- SOL DE LEVANTE SCL
- THADER CIEZA, SCL
- UNILAND, SC
- VEGA DE PLIEGO





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- THADER CIEZA, SCL
- UNILAND, SC
- VEGA DE PLIEGO





Región de Murcia

www.lessco2.es

QUÉ ES LESSCO2 | BENEFICIOS AMBIENTALES | MARCA LESSCO2 | EMPRESAS | PRODUCTOS | NOTICIAS | DOCUMENTACIÓN | CONTACTO



EMPRESAS ADHERIDAS

| EMPRESA | DOCUMENTO |
|-------------------------------------|---------------------|
| A. TERESA HERMANOS, SA | PDF |
| AGRÍCOLA SANTA EULALIA, SL | PDF |
| AGROYAFER COOP | PDF |
| ALIMENTOS DEL MEDITERRÁNEOS, S COOP | PDF |
| BIO CAMPO SLU | PDF |
| BODEGAS DEL ROSARIO | PDF |
| CAMPO DE LORCA, SCL | PDF |
| CANARAFLORES SCL | PDF |
| CASA ALTA S.COOP | PDF |
| COALOR, SCAL | PDF |
| COBUCO, SCL | PDF |
| COOP CAMPO DE MURCIA SCL | PDF |



ÚLTIMAS NOTICIAS

La Región de Murcia asistirá a la Fruit Logística (Berlín) los días 3-5 de febrero [leer más](#)

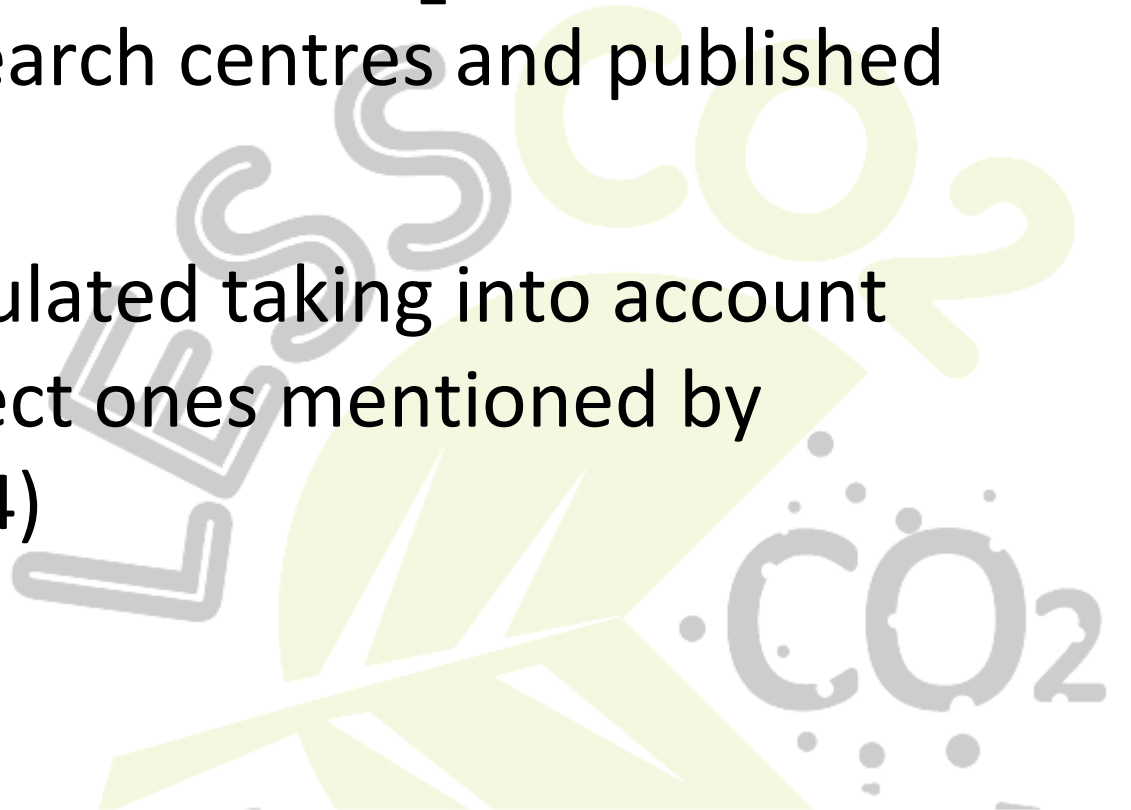
Un distintivo innovador para el campo murciano · La Verdad 9-12-09 [leer más](#)

Carbon balance

$$B=R-E$$

R= Fixation or removal of CO₂ from crops
(determined by research centres and published
through theWeb)

E= Emissions (calculated taking into account
the direct and indirect ones mentioned by
standards ISO 14064)





Región de Murcia

As opposite to the current brands, which show carbon footprints, the initiative from Murcia is based on the carbon balance

Brands expressing carbon footprints



It identifies products with a low carbon footprint



It categorises products in terms of their carbon footprints



It quantifies the carbon footprint in grams of CO₂



Marca que expresa Balance de carbono de un producto agrícola



Scientific effort to quantify the fixation of CO₂

Two public universities

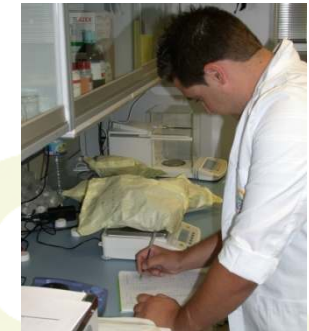


Two research centres



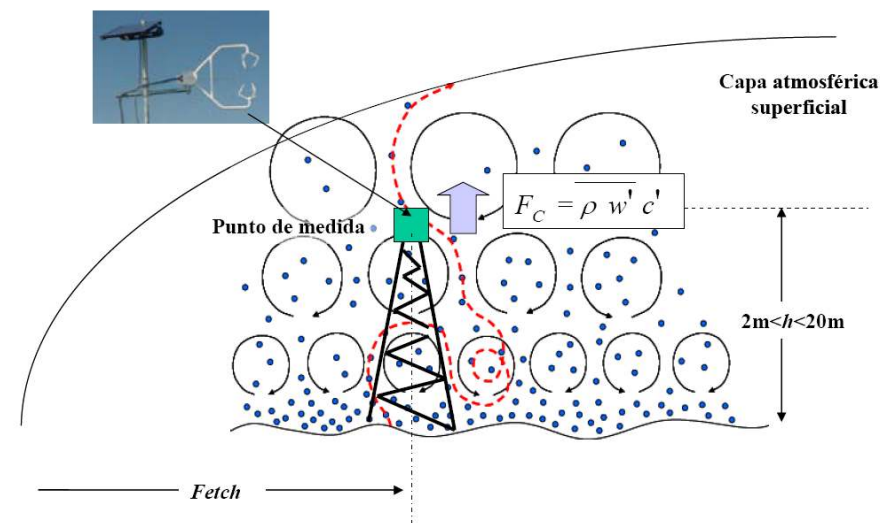
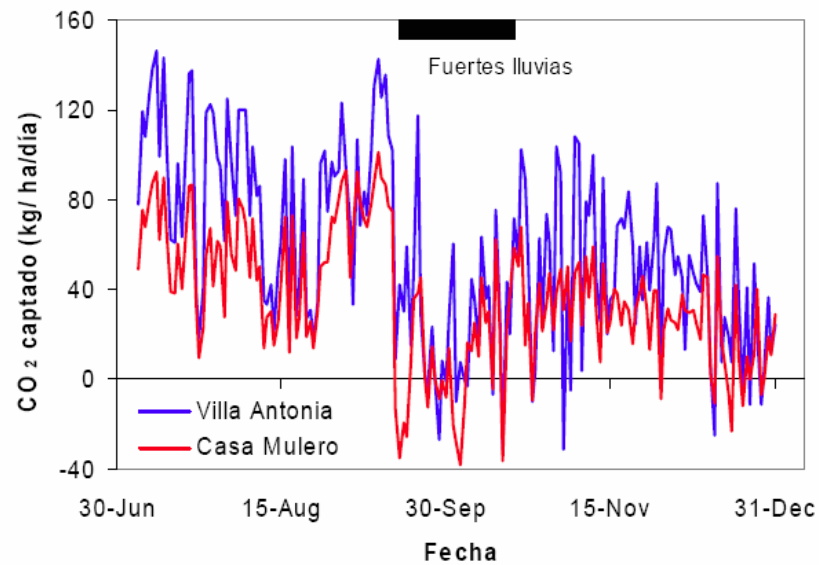


Stages from the research process of the fixation of CO₂





Stages from the research process of the fixation of CO₂





Stages from the research process of the fixation of CO₂





Región de Murcia

| CROP | FIXATION OF CO ₂ | TOTAL EMISSIONS WITHOUT A TRANSPORT | CARBON BALANCE PER HA |
|---------------|-----------------------------|-------------------------------------|------------------------|
| WOODY | CO ₂ t/ Ha /year | CO ₂ t/year/ha | CO ₂ t / ha |
| APRICOT TREE | 22.81 | 4.91 | 17.9 |
| PLUM TREE | 25.89 | 8.46 | 17.43 |
| LEMON TREE | 30.51 | 4.96 | 25.56 |
| MANDARIN TREE | 13.06 | 4.36 | 8.71 |
| PEACH TREE | 30.71 | 11.08 | 19.33 |
| ORANGE TREE | 20.72 | 4.96 | 15.77 |
| TABLE GRAPE | 18.65 | 3.99 | 18.15 |
| HERBACEOUS | CO ₂ t/ Ha /year | CO ₂ t/year/ha | CO ₂ t / ha |
| ARTICHOKE | 22.7 | 2.87 | 19.83 |
| BROCCOLI | 6.85 | 2,69 | 4.16 |
| CAULIFLOWER | 11.98 | 9.85 | 2.13 |
| LETTUCE | 9.08 | 5.33 | 4.89 |
| MELON | 10.41 | 9.25 | 1.17 |
| PEPPER | 25.72 | 16.08 | 9.64 |
| WATER MELON | 7.44 | 1.53 | 5.17 |
| TOMATO | 16.24 | 8.28 | 7.97 |



Región de Murcia

Collective commitment to contribute to the mitigation of the climate change removing from the atmosphere **more than one million** CO₂ tons per year

| CARBON BALANCE OF THE FRUIT AND VEGETABLE PRODUCTION OF THE REGION OF MURCIA | | |
|--|----------------|-------------------------|
| | Total Ha | Total CO ₂ t |
| TOTAL (herbaceous + woody) | 117,043 | 1,022,493.66 |

Supposing that all the production of the studied 117,043 Ha is transported to a distance of 2,000 km (south of Germany)



Región de Murcia



“The world will have to use all the options to hold back the global warming within the two degrees centigrade. The agriculture and the use of land have the potential to help to minimise the net emissions of greenhouse effect gases through precise practices, especially storing carbon in the ground and the biomass. These practices can increase at the same time the productivity and the resistance capacity of agriculture, thus contributing to the food safety and the reduction of poverty”,

Alexander Müller, Deputy General Director of the FAO.



Región de Murcia

Thank you very much

