ECO-ZEO is a 48 months (2012 – 2016) collaborative project subsidized by the 7th Framework Programme with a budget of 2,662,634 €

ECO-ZEO SCOPE

ECO-ZEO aims at the development of a new pool of green crop protection products, based on zeolites, delivering a wide range of beneficial effects including reduced water consumption, increased crop yield, lower chemical input, crop protection and tolerance to abiotic stress and healthier conditions to workers in agriculture and agrochemical sectors.

ZEOLITES

Zeolites are crystalline, hydrated aluminosilicates, with many commercial uses.

Zeolite 4A is a synthetic zeolite with a high selectivity in front of polar molecules as water and carbon dioxide. This behavior, applied on crop plants may increase photosynthetic efficiency and water efficiency.

Remarkably, Zeolite 4A has proved to be an innocuous substance in terms of environmental impact and toxicity, so the use of zeolites may contribute to the overall sustainability.

PROJECT PARTNERS

ECO-ZEO consortium is constituted by 10 participants from 8 different countries covering Research Organizations (IRTA, BATEM, LEI and UGENT), Industry (FMC and FITO), Agrobiotech SMEs (TERRA, FERRER and CEMAS) and a EU Association of farmers (AREFLH) as a necessary background to ensure successful development of new Sustainable Crop Protection Strategies.

TARGET AND THREATS

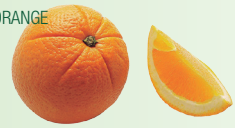
The selection of crops has been made considering water demand, vulnerability to pests, higher added value and productive extension in climate regions with low rainfall. Major threats have been selected in terms of vulnerability for each crop, average production losses and economic cost and efficacy of state of the art treatments.

CROPS

APPLE

TOMATO

TABLE GRAPE

ORANGE 

ATTRIBUTES	FACTS	ECO-ZEO impact
WATER	Unsustainable water consumption, in particular in Southern Europe.	Improved water efficiency.
AGRO-BIODIVERSITY	Balance of the agro-ecosystem that is threatened by standard practices.	Negligible ecotoxicity. Reduction of impact on soil microorganisms, predators and pollinators.
CONTROL OF PESTS AND DISEASES	Regulatory framework sets stricter criteria for approval of PPP´s. Directive on sustainable use of pesticides.	Sustainable, complementary active ingredients will be used in ECO-ZEO formulations.
CROP YIELD	Possible reduction in CAP budgets. Expected increase in world population.	Increase of crop yield through sustainable means.

CURRENT SITUATION

ECO-ZEO is a 4 year project. On its second year, these are the work packages completed:

WP2: preparatory study on crop protection strategies
- Study and analysis of zeolite 4A basic properties for surface crop protection
- Desk study on sustainable strategies, active ingredients and additives
- Initial lab screenings and selection of sustainable strategies and active incredients

WP3: Formulation and lab trials: phisical-chemical properties of ECO-ZEO
- Formulation and lab trials for basic physical-chemical performance
- Formulation and lab trials for improvement of storage and handling operations

WP4: Development of novel compositions: crop protection performance of ECO-ZEO
- Formulation: Chromatic masking, Behaviour interference, Microorganisms
- Lab tests on tomato, apple, grape and citrus crops