



SOLDEFEND PLUS

Complete protection
against sunburn



Your solution for:

- High temperatures and excessive solar radiation.
- Damage caused by heat stress.



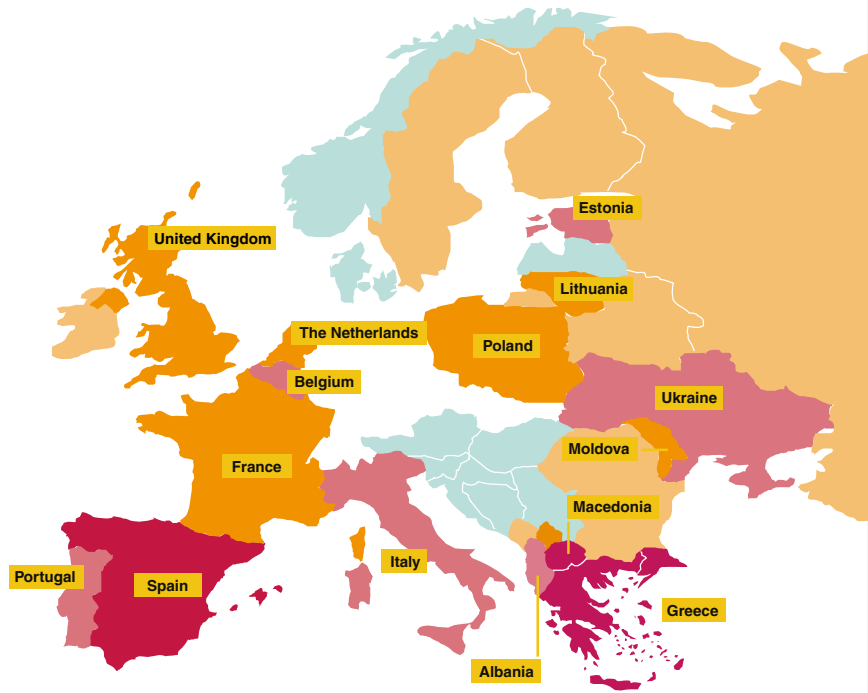
CLIMATE CHANGE AND GLOBAL WARMING

Water stress

Europe

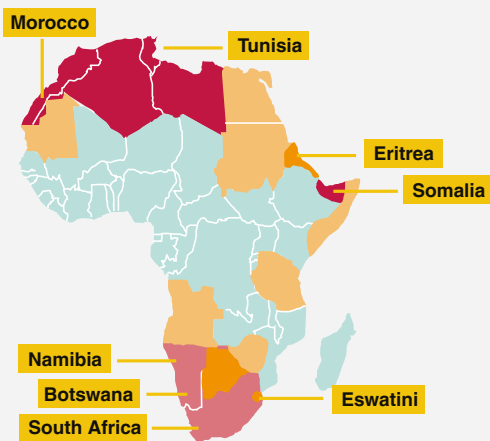
Ratio of needs to be covered
Water stress in 2040

- Low (<10%)
- Low to medium (10%-20%)
- Medium to high (20%-40%)
- High (40%-80%)
- Extremely high (>80%)



Africa

Water stress in 2040






Asia

Water stress in 2040



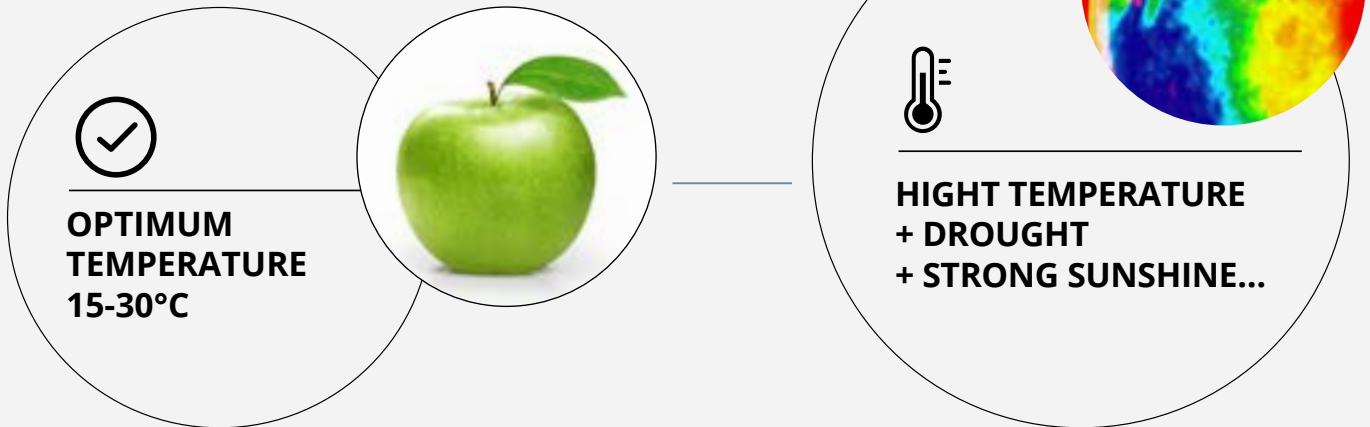
 Source: World Resources Institute

Water stress and excess radiation on plants produces, in addition to sunburn, the following:

-  **Reduced photosynthesis and closure**
-  **Premature loss of leaves.**
-  **Stopping of fruit growth and dehydration.**



¿WHAT OCCURS INSIDE THE FRUIT?



Excessive evapotranspiration

↓
Dehydration

↓
ROS: Reactive oxygen species

Superficial sunburn on fruits and vegetables

↓
Necrotic spots

Enzyme inactivation

Asphyxiation due to lack of O₂

↓
Cell Death

↓
Toxic substances

Physiological and biochemical mechanisms of fruits

↓
Complex defences systems to minimise damage

Entry of secondary pathogens through fruit burns

- 1 Photoprotective pigments
- 2 Antioxidant enzymes and metabolites
- 3 Heat shock proteins
- 4 Xanthophyll cycle

¿WHATS DOES SOLDEFEND PLUS TECHNOLOGY CONSIST OF?



Calcium (CaCO₃) 25%:
Small highly reflective particles

Zinc (ZnO) 2.5%:
UV+IR radiation filter



Reduction in fruit temperature.



Protection against harmful ultraviolet (UV) and infrared (IR) radiation.



Reduction in oxidation



Prevention of blocking of photosynthesis.



Physical barrier: prevention of water loss.

SOLDEFEND PLUS TECHNOLOGY: DESIGNED FOR THE PRODUCER

- ✓ Registered as CE FERTILISER: multi-crop.
- ✓ Organic and conventional agriculture.
- ✓ Easy to use liquid formula.
- ✓ Can be applied with standard spraying equipment and, in most cases, can be added to an existing treatment programme.
- ✓ Is not abrasive for the equipment.
- ✓ The size of the particles ensures good surface coverage.
- ✓ No spots: the fruit maintains its value.
- ✓ Safe for people and the environment.
- ✓ The most profitable option on the market.



HOW TO USE SOLDEFEND PLUS

Application dose: 2%, with a min and max of 10-20 L/Ha.

Volume of solution necessary for a good coating.

Number of applications:

1-3 applications/season. Make the necessary applications (every 15-30 days) to maintain crop protection until harvest, depending on weather and growing conditions.

SOLDEFEND PLUS must firstly be applied:

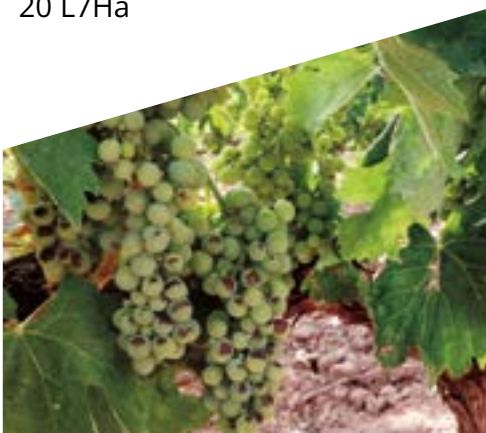
Before the size of the fruit exceeds 35 mm. Before the appearance of extreme heat conditions.

Use fine nozzles and adequate speed and pressure to obtain a fine drop that covers the vegetation. Avoid large drops.

TESTS: TREATMENT OF VINEYARDS WITH SOLDEFEND

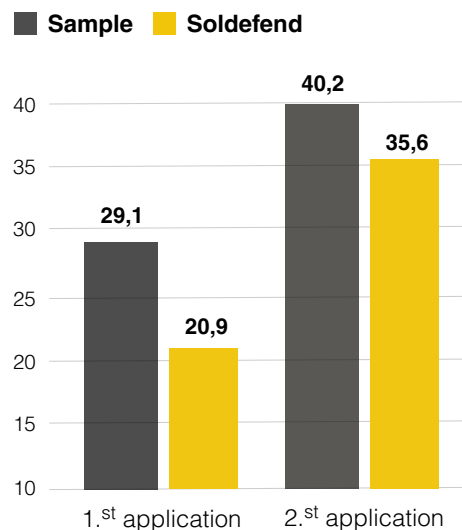
Marselan variety, trellis cultivation, without irrigation, 2400 pl/Ha

2 applications: beginning of July and beginning of August.
20 L7Ha



Temperature of the bunches. 1 week after each application.

Tarragona 2020



Drop in midday temperature of 11 % (-8 °C) and 28 % (-5 °C).

More than a month after the last application, the temperature is still below 12 % (-4 °C).

TESTS: TREATMENT OF VINEYARDS WITH SOLDEFEND

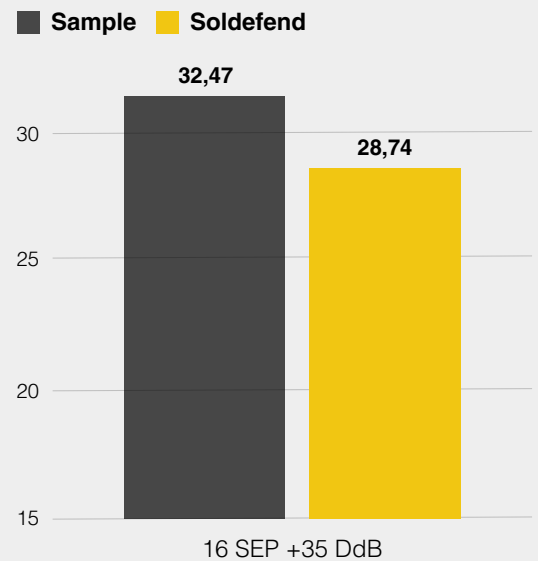


Numerous tastings have been carried out to determine whether the product influences the final flavour of the must.



It has been concluded that Soldefend does not affect the flavour of the wine, not even when applied in advanced stages of grape growing.

Temperature of the bunches at harvest time. +35 days after the 2nd application



	Weight 1000 grapes	G.A.P.	pH	ATS Ç
SAMPLE	114,6 b	14,8 a	3,5 a	6,0 a
SOLDEFEND	119,2 a	13,7 b	3,2 b	3,8 b

Thanks to solar protection, an increase in weight of 4% is achieved. Quality is improved, reducing the probable alcoholic level and total acidity, which favours a delay in maturation.



TESTS: TREATMENT OF POMEGRANATE TREES WITH SOLDEFEND PLUS



Alicante
2020

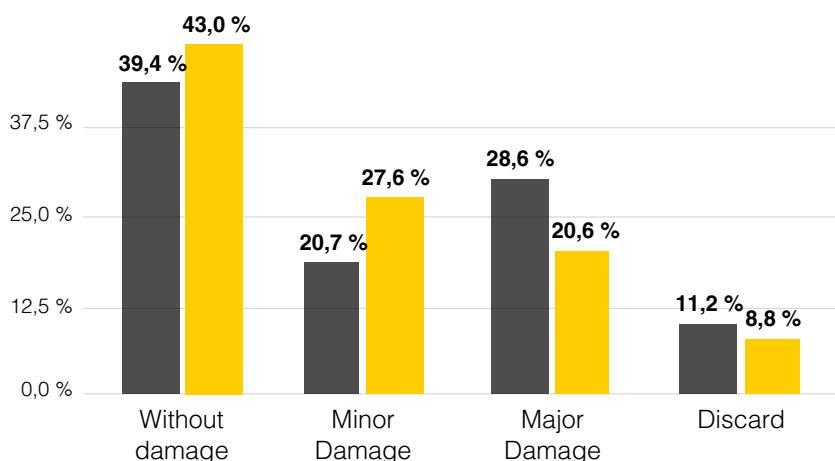
Adult trees, >6 years

Early applications 3 and 24 June (+21 days)

Damage assessment 01/09/2020

■ Sample ■ Soldefend Plus

Percentage	Sample	Soldefend	Diff.
Without damage	39,4%	43 %	3,6 %
Minor damage (ctg. II)	20,7 %	27,6 %	6,9 %
Major damage (ctg. III)	28,6 %	20,6 %	-8,0 %
Discard	11,2 %	8,8 %	-2,4 %



Two months after the last application, shortly before the harvest, when the time of greatest exposure to the sun had already passed, we categorised damage caused by the sun in which we observed how Soldefend Plus manages to protect a significant quantity of fruit.

(+3.6% in the ctg. I and +6.9% in the ctg. II, and discard reduction and ctg. III).

TESTS: TREATMENT OF POMEGRANATE TREES WITH SOLDEFEND PLUS



More than a month after the second application, the fruit had already reached its maximum size. In the case of fruit treated with Soldefend Plus, we see that the product remains in the fruit, as the effects of sunlight remain high until mid-September.

TESTS: TREATMENT OF APPLE TREES WITH SOLDEFEND

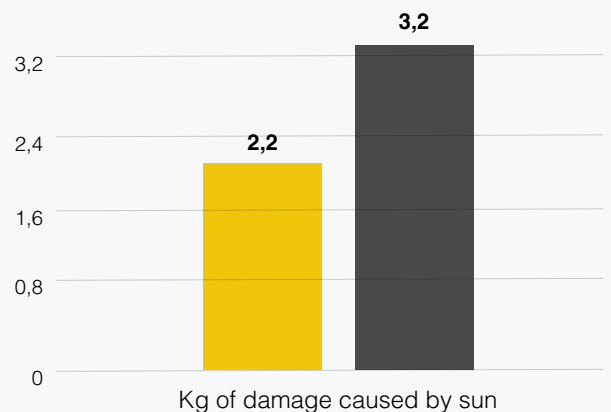
■ Brookfield-Gala variety, intensive cultivation

2 applications x 20 L/Ha (1000 L of spray mixture):
26 June and 29 July (+33 days)

Evaluation of harvest 13 August
(15 days after the 2nd application)

■ Sample ■ Soldefend

Protection difference Kg/tree	0,94
Plantation density (tree/Ha)	2.400
Protection difference Kg/Ha	2.261



Without damage

Sunburn



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13 August. Appearance of healthy fruit and sun-damaged fruit during treatment, at the time of harvest.

> The application on two occasions of Soldefend helps protect around 7.5% of the production, which is equivalent to almost 1 kg per tree and 2200 kg/ha.

> The product does not cause spots, degrades gradually and is easily cleaned.