

628 IRTA Staff



113 Associated Staff



69 Doctoral Students



810 TOTAL

4 AREAS

Plant Production
Animal Production
Food Industries
Environment



- IRTA work centre
- Centres in partnership
- ▲ IRTA experimental stations
- △ Experimental stations in partnership
- ◆ Collaborating estates and farms



18 Locations

- 5** in Barcelona
- 7** in Lleida
- 5** in Tarragona
- 2** in Girona

13 IRTA centres and experimental stations

5 Experimental consortium. Centres and stations

CHALLENGE:

Detection and elimination of bitter almonds.



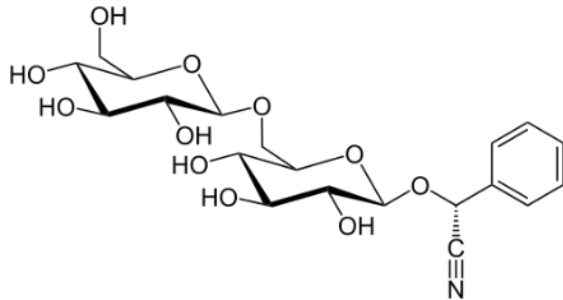
IMPORTANCE OF SPANISH ALMOND	
FIELDS	600,000 hectares
PRODUCTION	60,000 tons of almond/year
EXPORT	45%
ECONOMIC VALUE	325 million euros
Forecast in 2025	150,000 tons of almond/year 450 million euros

CHALLENGE:

Detection and elimination of bitter almonds.



Bad taste due to the presence of **Amygdalin**.



In high doses, this substance can be dangerous, as it can release **cyanide**.

Amygdalin can be detected with **near infrared (NIR) spectroscopy**.

INTRODUCTION:

Some additional information about bitter almond



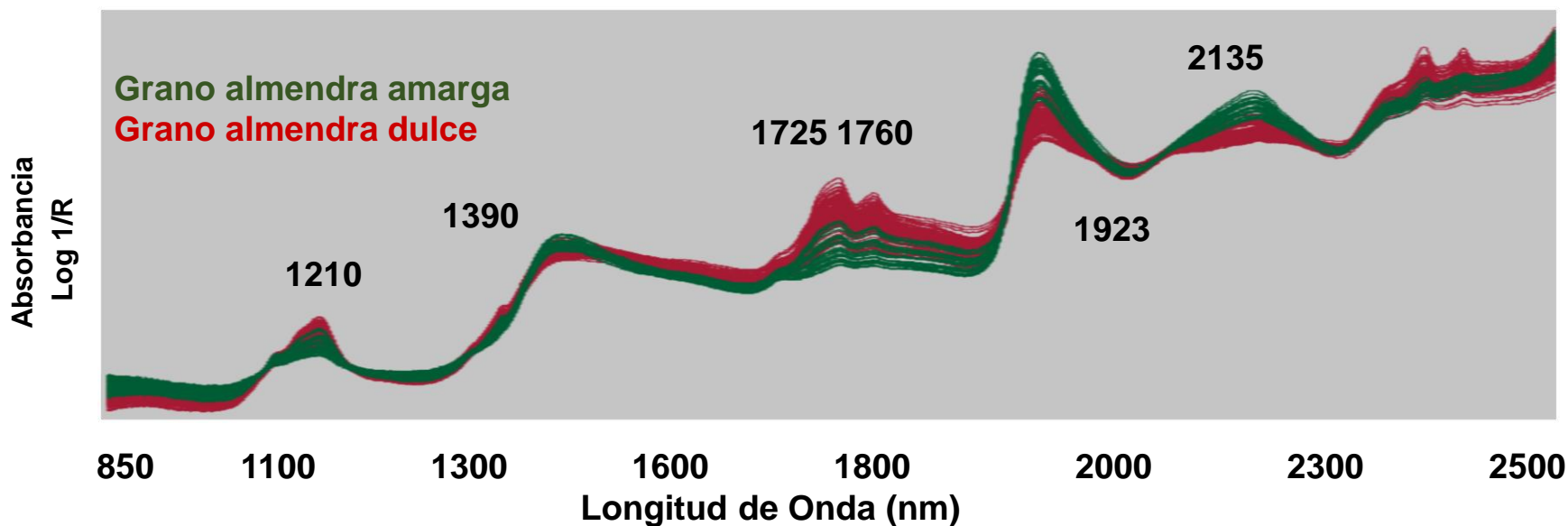
Bitterness level	Amygdalin (mg/kg)	Genethics	Varieties
Sweet	< 100	AA	'Vairo', 'Penta'
Slightly bitter	150 – 300	Aa	'Guara', 'Garrigues'
Bitter	30.000 – 60.000	aa	Amargo



INTRODUCTION:

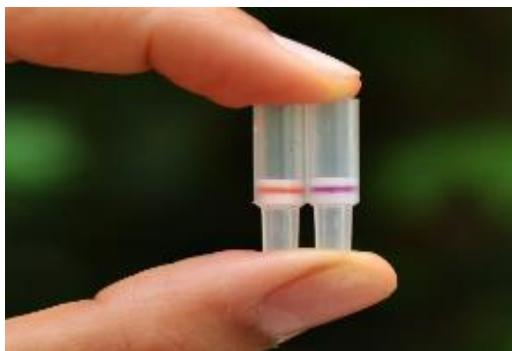
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Possible points of detection of the amygdalin in the production chain of the almond

FIRST FILTER: FIELD



Kit of detection of HCN and/or Benzaldehyde



Use of NIR technology in the field and laboratory

Detection in the field when the fruit is in the tree. Some prototypes already used.

Possible points of detection of the amygdalin in the production chain of the almond



SECOND FILTER: RECEPTION



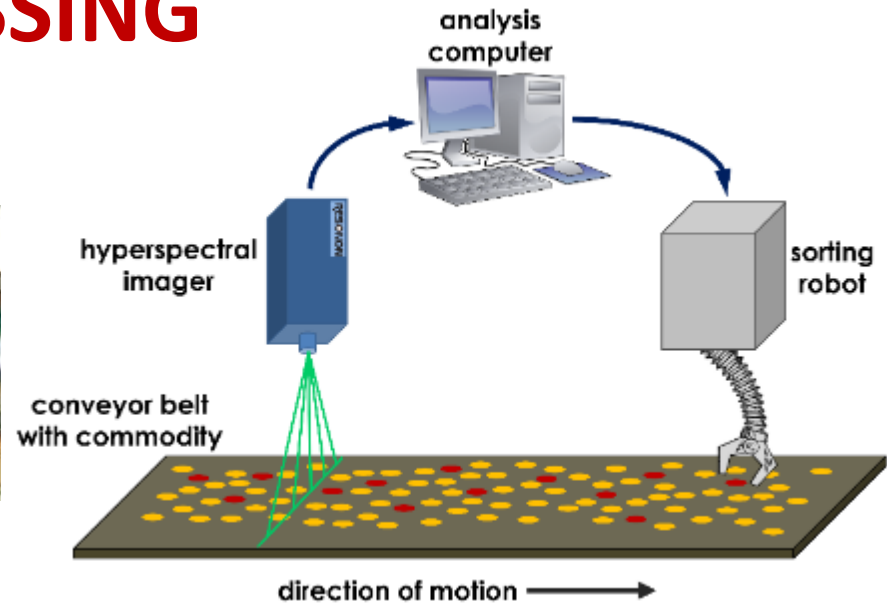
Use of NIR technology in laboratory
Absorbance of the Amygdalin

Detection in the cooperative when the sampling of the harvest takes place.
Some solutions already in place.

Possible points of detection of the amygdalin in the production chain of the almond

THIRD FILTER: PROCESSING

SECPHO
CHALLENGE



In the packaging or processing line, **ONLINE** detection by a hyperspectral equipment and elimination by and an articulated arm.

Thank you for your attention

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