

Valorization of grape stems as a functional ingredient in ruminant diets 20 June 2024

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newfeed

FEED FROM FOOD INDUSTRY BY-PRODUCTS







RHODES2024

## **NEWFEED project:**

# Turn food industry by-products into secondary feedstuffs via circular-economy schemes

Project Duration:	48 months (1/7/2021 - 30/6/2025)
Website:	www.newfeed-prima.eu
Contact:	David San Martin / Project Coordinator - dsanmartin@azti.es



NEWFEED (Grant Agreement number 2013), is part of the PRIMA Programme supported by the European Union.

### Project Partnership





## **OVERALL OBJECTIVES**



"Development and adoption of **alternative animal feeds**, setting up a circular economy approach in the livestock production by turning food by-products into high value secondary feedstuff for animal feed".

"Increasing the **Mediterranean livestock sustainability** by valorising local food industry byproducts to reduced environmental impact and costs".



Innovative solutions for the development of alternative animal feeds from food industry by-products

animal the circular economy ond approach

validation of bioprocessing techniques for the valorizing of food industry by-products into added value alternative feeds Increase of Mediterranean livestock sustainability









## **VALUE CHAINS**



Three value chains will be validated at the Mediterranean area to create **new business opportunities** based on a multi-actor approach in their conception, configuration, and its sustainability assessment:















## **FULL VALUE CHAIN & WP STRUCTURE**



19-22 JUNE 2024





## **GRAPE STEM**





Grape stem from wineries as a second-generation feedstuff to produce a new feed ingredient for ruminants (dairy sheep and cattle). AZTI / Spain.

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## **CASE STUDY 1**

Grape stem-based ingredients for dairy sheep and cattle









PRIMA

THE MEDITERRANEAN AREA

## **PROPOSED SOLUTION**



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## **PROPOSED SOLUTION**



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Grape stem from wineries as a second-generation feedstuff to produce a new feed ingredient for ruminants (dairy sheep and

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cattle). AZTI / Spain.



### **Sheep Feed Formulation**

	CTR	<b>GS/HGS</b>			UCS Undraliga
Ingredients (%)			CTR - Control	GS – Grape Stem	Grane Stem
Maize	34.2	37.0	_		Grape Stem
Soybean meal	25.1	28.7			
Palm kernel meal	15.0	8.0			
Wheat middlings	14.4	4.0			
Rapeseed meal	2.0	3.0			STORE ST
Sunflower meal	1.1	1.0		PROSENT STATE	
Grape stems		10.0		ASTAL MENTS	A States
Fat salts	2.9	2.9		いないまで	
Molasses	2.0	2.0	A State of the sta	SACA AND	The state of the
Calcium carbonate	1.7	1.7	Stand Stand	AN STATION	ROADR
Sodim bicarbonate	1.1	1.1	A A A A		A REAL
Sodium chloride	0.2	0.2	TAX PARTY	C. C	Real A
Minerals	0.3	0.3	TAAT	A CARACTER A	Ser Land
Nutritive value					
UFL	1.02	1.01		Carles Carnets	
CP (%)	19.0	19.0	Alexandra a		<b>人口</b> 的日本的社会社
Fat (%)	6.0	6.0			
Starch (%)	25.0	25.0			





### **Case study 1: grape stem-based ingredients for dairy sheep**





HGS



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Curdles sensory analysis





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## **PROPOSED SOLUTION**



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Grape stem from wineries as a second-generation feedstuff to produce a new feed ingredient for ruminants (dairy sheep and

cattle). AZTI / Spain.

### **Case study 1: grape stem-based ingredients for dairy cattle**



#### **Dairy cattle Feed Formulation**

	CTR	GS
Ingredients (%)		
Maize	34.2	37.0
Soybean meal	25.1	28.7
Palm kernel meal	15.0	8.0
Wheat middlings	14.4	4.0
Rapeseed meal	2.0	3.0
Sunflower meal	1.1	1.0
Grape stems		10.0
Fat salts	2.9	2.9
Molasses	2.0	2.0
Calcium carbonate	1.7	1.7
Sodim bicarbonate	1.1	1.1
Sodium chloride	0.2	0.2
Minerals	0.3	0.3
Nutritive value		
UFL	1.02	1.01
CP (%)	19.0	19.0
Fat (%)	6.0	6.0
Starch (%)	25.0	25.0











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cattle). AZTI / Spain.

### **Case study 1: grape stem-based ingredients for dairy cattle**







### Case study 1: grape stem-based ingredients for dairy sheep and cattle



### **Main Conclusions**

- NEWFEED Project designed, tested and validated a full scheme for the valorisation of wine by-product for ruminant feed to transform it into valuable proteins (milk)
- > The effect of 10 % Grape Stem inclusion in **dairy sheep** feed:
  - The hydrolyzed grape stems ingredient does not provide any productive advantage
  - More sustainable feed can be formulated up to 10% in the concentrate without impairing dry matter intake, milk production or composition, methane emissions or production efficiency

> The effect of 10 % Grape Stem inclusion in **dairy cattle** feed:

- Increases feed intake but does not improve milk yield
- No significant changes in the nutritional composition of milk
- Milk fatty acid profile towards a healthier one for human
- There is a slightly reduction of enteric methane emissions
- Consumers cannot distinguish between curdles produced with milk obtained from both ruminants that consuming 10% GS or the control without SG addition.



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# Thank you for your attention!



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