

**HORIZON
2020**

Upgrading and implementing mathematical models to increase nitrogen use efficiency of lactating dairy COWS.

Fact Sheet

Project Information

CowficieNcy

Grant agreement ID: 777974

[Project website](#) 

DOI

[10.3030/777974](https://doi.org/10.3030/777974) 

Project closed

EC signature date

25 October 2017

Start date

1 January 2018

End date

30 June 2023

Funded under

EXCELLENT SCIENCE - Marie Skłodowska-Curie Actions

Total cost

€ 1 102 500,00

EU contribution

€ 994 500,00

Coordinated by

PANEPISTIMIO THESSALIAS



Greece

Objective

Nitrogen (N) is an essential nutrient of food production, but its extended use led to the N cascade phenomenon with considerable effects on atmospheric, freshwater and marine systems. The increased efficiency of N use in dairy production is proposed as key action to reduce N contamination, and mathematical models

provide a powerful tool to help with this. We are planning to use two models: The Cornell Net Carbohydrate and Protein System (CNCPS; a cow based model) and the Lifetime Nitrogen Efficiency (LNE; a herd based model). The models will be updated on amino acid metabolism (CNCPS), heifer growth and cattle fertility and economics (LNE) increasing not only their accuracy but also their commercial potential. In parallel, an intensive outreach program will incorporate farms in each country to describe N balance situation. This step will provide the necessary time to familiarize and accommodate farms with current model use. The last phase of the project consists on the implementation of the upgraded models in our pilot farms. This will provide a real life example that can generate a shift in agricultural practice towards more efficient and less polluting dairy industry. The European Union has been taken several initiatives either at a research level (e.g. FP-7 project RedNex) or at a legislative level (e.g. the National Emission Ceilings directive 2001/81/EC; currently under revision) to reduce N pollution from dairy production. However, few strategies have been converted into agricultural practice because of the lack of an applied step linking research strategies with the dairy industry. This is the strength of the current project that includes four non-academic partners that consult on thousands of European dairy farms and six European and American academic institutions, two of which developed the models, but all highly prestigious in their countries and internationally.

Fields of science (EuroSciVoc)

[agricultural sciences](#) > [animal and dairy science](#) > **[dairy](#)**

[natural sciences](#) > [biological sciences](#) > [biochemistry](#) > [biomolecules](#) > **[carbohydrates](#)**

[agricultural sciences](#) > [animal and dairy science](#) > [domestic animals](#) > **[animal husbandry](#)**

[natural sciences](#) > [chemical sciences](#) > [organic chemistry](#) > **[amines](#)**

[natural sciences](#) > [mathematics](#) > [applied mathematics](#) > **[mathematical model](#)**



Keywords

[dairy cattle nutrition](#)

[farm nitrogen use efficiency](#)

[milk nitrogen use efficiency](#)

[nutritional modeling](#)

Programme(s)

Topic(s)

[MSCA-RISE-2017 - Research and Innovation Staff Exchange](#)

Call for proposal

[H2020-MSCA-RISE-2017](#) 

[See other projects for this call](#)

Funding Scheme

[MSCA-RISE - Marie Skłodowska-Curie Research and Innovation Staff Exchange \(RISE\)](#)

Coordinator



PANEPISTIMIO THESSALIAS

Net EU contribution

€ 342 000,00

Total cost

€ 342 000,00

Address

ARGONAFTON FILELLINON

38221 Volos

 **Greece** 

Region

Κεντρική Ελλάδα > Θεσσαλία > Μαγνησία

Activity type

Higher or Secondary Education Establishments

Links

[Contact the organisation](#)  [Website](#) 

[Participation in EU R&I programmes](#) 

[HORIZON collaboration network](#) 

Participants (13)



UNIVERSITAT AUTONOMA DE BARCELONA

Spain

Net EU contribution

€ 81 000,00

Address

EDIF A CAMPUS DE LA UAB BELLATERRA Cerdanyola V
08193 Cerdanyola Del Valles

Region

Este > Cataluña > Barcelona

Activity type

Higher or Secondary Education Establishments

Links

- [Contact the organisation](#)
- [Website](#)
- [Participation in EU R&I programmes](#)
- [HORIZON collaboration network](#)

Total cost

€ 121 500,00



GEOPONIKO PANEPISTIMION ATHINON

Greece

Net EU contribution

€ 117 000,00

Address

IERA ODOS 75
118 55 ATHINA

Region

Αττική > Αττική > Κεντρικός Τομέας Αθηνών

Activity type

Higher or Secondary Education Establishments

Links

- [Contact the organisation](#)
- [Website](#)
- [Participation in EU R&I programmes](#)

Total cost

€ 121 500,00



UNIVERSITA DEGLI STUDI DI PARMA

 Italy

Net EU contribution

€ 225 000,00

Address

VIA UNIVERSITA 12
43121 PARMA 

Region

Nord-Est > Emilia-Romagna > Parma

Activity type

Higher or Secondary Education Establishments

Links

[Contact the organisation](#)  [Website](#) 

[Participation in EU R&I programmes](#) 

[HORIZON collaboration network](#) 

Total cost

€ 274 500,00



ABERYSTWYTH UNIVERSITY

 United Kingdom

Net EU contribution

€ 36 000,00

Address

VISUALISATION CENTRE PENGLAIS
SY23 3BF Aberystwyth 

Region

Wales > West Wales and The Valleys > South West Wales

Activity type

Higher or Secondary Education Establishments

Links

[Contact the organisation](#)  [Website](#) 

[Participation in EU R&I programmes](#) 

[HORIZON collaboration network](#) 

Total cost

€ 49 500,00



ZOOTROFES - CHIMIKA NOUTRIA ELLAS D. TSOLAKHS IKE

 Greece

Net EU contribution

€ 45 000,00

Address

NATO AVENUE 100 THESI AG. GEORGIOS
19300 Aspropyrgos, Athens 

Region

Αττική > Αττική > Δυτική Αττική

Activity type

Private for-profit entities (excluding Higher or Secondary Education Establishments)

Links

[Contact the organisation](#) 

[Participation in EU R&I programmes](#) 

[HORIZON collaboration network](#) 

Total cost

€ 45 000,00



LABORATORIOS KARIZOO, SA

 Spain

Net EU contribution

€ 13 500,00

Address

POLIGONO INDUSTRIAL LA BORDA, CALLE MAS PUJADAS NA
08140 Caldes De Montbui 

Region

Este > Cataluña > Barcelona

Activity type

Private for-profit entities (excluding Higher or Secondary Education Establishments)

Links

- Contact the organisation
- Participation in EU R&I programmes
- HORIZON collaboration network

Total cost

€ 13 500,00



RUM&N sas di Melli&C

Italy

Net EU contribution

€ 9 000,00

Address

SANT'AMBROGIO 4/A
42123 Reggio Emilia

Region

Nord-Est > Emilia-Romagna > Reggio nell'Emilia

Activity type

Private for-profit entities (excluding Higher or Secondary Education Establishments)

Links

- Contact the organisation
- Participation in EU R&I programmes
- HORIZON collaboration network

Total cost

€ 9 000,00



MOLE VALLEY FARMERS LIMITED

United Kingdom

Net EU contribution

€ 0,00

Address

EXMOOR HOUSE, LIME WAY, PATHFIELDS BUSINESS PARK
EX36 3LH South Molton Devon

Region

Activity type

Private for-profit entities (excluding Higher or Secondary Education Establishments)

Links

- [Contact the organisation](#)
- [Participation in EU R&I programmes](#)
- [HORIZON collaboration network](#)

Total cost

No data



WYNNSTAY GROUP PLC

United Kingdom

Net EU contribution

€ 13 500,00

Address

EAGLE HOUSE LLANSANTFFRAID YM MECHAIN
SY22 6AQ Powys

Region

Wales > East Wales > Powys

Activity type

Private for-profit entities (excluding Higher or Secondary Education Establishments)

Links

- [Contact the organisation](#)
- [Participation in EU R&I programmes](#)
- [HORIZON collaboration network](#)

Total cost

€ 13 500,00



THE UNIVERSITY OF LIVERPOOL

United Kingdom

Net EU contribution

€ 49 500,00

Address

BROWNLOW HILL 765 FOUNDATION BUILDING
L69 7ZX Liverpool 

Region

North West (England) > Merseyside > Liverpool

Activity type

Higher or Secondary Education Establishments

Links

[Contact the organisation](#)  [Website](#) 

[Participation in EU R&I programmes](#) 

[HORIZON collaboration network](#) 

Total cost

€ 49 500,00



ARISTOTELIO PANEPISTIMIO THESSALONIKIS

 Greece

Net EU contribution

€ 40 500,00

Address

KEDEA BUILDING, TRITIS SEPTEMVRIOU, ARISTOTLE UNIVERSITY CAMPUS
546 36 THESSALONIKI 

Region

Βόρεια Ελλάδα > Κεντρική Μακεδονία > Θεσσαλονίκη

Activity type

Higher or Secondary Education Establishments

Links

[Contact the organisation](#)  [Website](#) 

[Participation in EU R&I programmes](#) 

[HORIZON collaboration network](#) 

Total cost

€ 40 500,00



MENDIP VETERINARY SERVICES LIMITED

 United Kingdom

Net EU contribution

€ 13 500,00

Address

THE HORTICULTURAL WORKS - GREEN ORE
BA5 3EU Wells 

Region

South West (England) > Dorset and Somerset > Somerset

Activity type

Private for-profit entities (excluding Higher or Secondary Education Establishments)

Links

[Contact the organisation](#) 

[Participation in EU R&I programmes](#) 

[HORIZON collaboration network](#) 

Total cost

€ 13 500,00



CONSORZIO AGRARIO DI PARMA SOCIETA COOPERATIVA A RESPONSABILITA LIMITATA

 Italy

Net EU contribution

€ 9 000,00

Address

STRADA DEI MERCATI N 17
43126 Parma 

Region

Nord-Est > Emilia-Romagna > Parma

Activity type

Other

Links

[Contact the organisation](#) 

[Participation in EU R&I programmes](#) 

[HORIZON collaboration network](#) 

Total cost

€ 9 000,00

Partners (1)



PARTNER 

CORNELL UNIVERSITY

 United States

Net EU contribution

€ 0,00

Address

PINE TREE ROAD 373

14850 Ithaca Ny 

Activity type

Higher or Secondary Education Establishments

Links

[Contact the organisation](#)  [Website](#) 

[Participation in EU R&I programmes](#) 

[HORIZON collaboration network](#) 

Total cost

€ 108 000,00

Last update: 15 April 2024

Permalink: <https://cordis.europa.eu/project/id/777974>

European Union, 2025