



# Nutrient Management and Nutrient Recovery Thematic Network

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- **Title:** Nutrient Management and Nutrient Recovery Thematic Network (NUTRIMAN) from year **2018** to **2031**
- **Programme:** H2020, RUR 15, **Thematic networks compiling knowledge ready for practice.**
- **Coordinator:** Edward Someus, 3R-BioPhosphate Ltd.
- **Start of the project:** 1 October 2018, **Duration:** 36 months + 10 years
- **Int. conference:** September 16, 2021 <https://nutriman.net/conference>
- **Funded by:** European Union Horizon 2020, RUR-15-2018 (CSA Coordination and Support Action), grant agreement no. 818470.
- **Official website:** <https://www.nutriman.net>

# The NUTRIMAN Consortium



**Total: 18 Partners from 8 EU countries 2018-2021:**

- 9 Research Institutes
- 3 SMEs
- Chambers of Agri, Farmers' association,
- Non-profit organisation.



## What is NUTRIMAN?

- A Nitrogen and Phosphorus thematic network compiling and sharing knowledge of “**ready-for-practice**” recovered bio-based fertiliser technologies, products, applications and practices for the benefit of agricultural practitioners. **Solutions above TRL6 maturity level.**
- **Areas of interest:** Nitrogen and Phosphorus nutrient recovery, novel technologies and innovative fertilizers, food safety and supply security, sustainable food production.

## Reasons:

- Ensures that when the new **EU Fertilising Products Regulation** law harmonization is reaching implementation status in 2022, the agricultural practitioners already know, have tried and are applying such recovered products in practice.

**For whom:** Farmers, advisors, businesses, applied researchers, NGOs, etc.

**Bottom-up approach = the farmers' point of view**



# TRL Technology Readiness Level

## IRL Investment Readiness Level



**Operational area: beyond successfully completed TRL6.**

TRL & IRL EVOLUTION schedules and capabilities		Implementation		Evidence
Status of RTD progress - " <b>RMI</b> " Research Maturity Index		factor	risk	
Maturity progress	<b>TRL 1-3 = IDEA</b> = basic principles, concept	0-1%	100%	THESIS: theoretical assumptions
	<b>TRL 4</b> = validated in laboratory	<3%	>97 %	
	<b>TRL 5-6 = PILOT</b> validated <b>IRL5-6 = validate market fit</b>	<25%	>90%	
	<b>TRL 7= PROTOTYPE</b> demo <b>IRL 7 = prototype viable product</b>	60-75%	40-70%	Prototype Demo
	<b>TRL8 = FIELD DEMO</b> qualified <b>IRL 8 = validate value delivery</b>	75-90%	15-25%	Industrial validated
	<b>TRL 9 = actual system proven</b> in operational environment, ready for market competitive commercial deployment. <b>IRL 9 = identify and validate metrics</b> first full industrial/market/commercial replication model.	95-99%	1-5%	Market validated for commercial replication

Low RMI

RTD risk break-even point

High RMI

## How?

- **Focuses on connecting market competitive and commercially “ready for practice” innovative results** drawn from high research maturity applied scientific programmes and common industrial practices.
- **Brings together innovation actors** (farmers, advisors, developers, businesses, NGOs, etc.) and helps to build bridges between user-oriented applied research results and agricultural production practices.
- How to connect to NUTRIMAN network:  
<https://nutriman.net/i-am-a> - **ASK NUTRIMAN**
- **Mini survey feed back** to be replied in 8 languages (takes 1 minute only): Example:
- [https://nutriman.net/farmer-platform/product/id\\_192#mini-survey](https://nutriman.net/farmer-platform/product/id_192#mini-survey)

# How to connect?

<https://nutriman.net/i-am-a>



By selecting your end-user page you can easily access to the **SPECIFIC INFORMATION**.

The screenshot displays the NUTRIMAN website interface. At the top, a green header bar contains flags of member states (UK, Germany, France, Italy, Spain, Netherlands, Poland, Hungary) on the left, social media icons (Facebook, Twitter, LinkedIn, YouTube, SoundCloud) on the right, and a search bar. Below the header, the text 'NUTRIMAN - NUTRIent MANagement and Nutrient Recovery Thematic Network' is visible. A navigation menu includes 'THE PROJECT +', 'NEWS', 'MEDIA +', 'EVENTS', 'LINKS', 'CONTACT - ASK NUTRIMAN', and 'FAQ'. Two prominent green buttons are labeled 'FARMER SURVEY' and 'FARMER PLATFORM'. Below the navigation, a breadcrumb trail shows 'Home > I am a'. The main content area is titled 'I am a' and features four selectable options, each with a representative icon: 'Farmer' (a farmer with a hat and fork), 'Researcher' (a woman with a thought bubble containing a beaker), 'Company' (a man in a suit and glasses), and 'Governmental- or non Non governmental organisations' (a woman in a suit and glasses).



# The NUTRIMAN project – key activities



1. **IDENTIFICATION** of matured innovative research results in the field of N/P recovery EU28 technologies, which are near to be put into practice, but not sufficiently known by agricultural practitioners.
2. **EVALUATION** of innovative N/P nutrient recovery technologies & novel N/P fertiliser products and practices, both by experts and by the potential end-users.
3. **COMPILATION** of “ready for practice” knowledge in a form of EIP-AGRI practice abstracts, info sheets, multi-lingual (8 languages) product application and training materials, audio-visual materials and infographics.
4. **SHARING & SPREADING** the collected knowledge towards agricultural practitioners (farmers, farmer organisations, advisory services) during online webinar and face-to-face workshops across Europe.
5. **LONG TERM OPERATION** (up to year 2031) of 8 languages interactive practice oriented NUTRIMAN farmer platform:  
<https://nutriman.net/farmer-platform>





# Objective of NUTRIMAN



Technologies and products  
For the recovery of N/P  
“ready to be put on  
the market”



**NUTRIMAN Platform  
for Farmers  
Advice & Recommendations**



**NUTRIMAN Platform for  
Farmers  
Practical Knowledge**

<https://nutriman.net/farmer-platform>

# How to contact with the NUTRIMAN – ASK NUTRIMAN



- **NUTRIMAN Social pages:** Facebook/Twitter/LinkedIn: @Nutrimannetwork
- **Online contact form at 8 languages:**  
<https://nutriman.net/contact>
  - general questions on the NUTRIMAN Thematic Network
  - specific questions related to any technology and/or product published on the Farmer Platform.
  - Sharing your innovative nitrogen/phosphorus recovery technology with the farmers.
- **The most interesting interactions will be highlighted anonymously in the NUTRIMAN FAQ sections operating at 8 languages:** <https://nutriman.net/FAQS>





- **Specifically developed website for farmers.**
- Key information at eight languages (EN, DE, FR, IT, NL, ES, PL, HU)
- **Online Database** of innovative N/P nutrient recovery technologies & novel N/P fertiliser products and practices:
  - EIP-AGRI practice abstracts,
  - info sheets,
  - product application and training materials,
  - audio-visual materials and
  - Infographics.
- <https://nutriman.net/farmer-platform>





# Characteristics of the NUTRIMAN web platform

## *Dedicated pages:*

- Description of the main characteristics of the product or technology
- **Guidelines** for appropriate involvement in agriculture

Are available:

- Fact sheet;
- Infographics;
- Audio-visual equipment

} **Joint work** of the partner of the project and companies involved

Link to the platform for farmers in **own language**



# Characteristic of NUTRIMAN Platform

NUTRIMAN - NUTRient MAnagement and Nutrient Recovery Thematic Network

Q Search...

THE PROJECT + NEWS MEDIA + EVENTS LINKS CONTACT - ASK NUTRIMAN FAQ

EU FERTILISER REGULATION + FARMER SURVEY FARMER PLATFORM

Home > Farmer Platform

## Farmer Platform

**WELCOME** on the NUTRIMAN Farmer Platform, which is a Nitrogen and Phosphorus innovative fertiliser recovery thematic network. This Farmer Platform is a continuously expanding database that will be evolutionary maintained for long term up to 2031.

**Are You a Farmer** interested to learn more about how bio-based and recovered phosphorous and nitrogen technologies and products can help your business? This farmer platform provides a wealth of information on market-ready nutrient recovery technologies and bio-based fertiliser products. It contains practical and user-oriented information and training materials on each innovative technology and bio-based fertiliser product, such as practice abstracts, infosheets, videos and direct contact information of the vendors. Important information is available in 8 languages.

**Are You a researcher at University/RTD organisation and you are involved in novel technology and product development driven applied Research & Innovation actions where your consortium is developed** innovative phosphorous and nitrogen recovery technologies and products which are already in matured phase (>TRL6) "ready for practice"? **EU FP7, H2020, LIFE, Interreg or other national/international programme result interlinks are most welcome. How to connect to farmer platform?**

**Are You a Vendor** with market-ready phosphorous and nitrogen recovery technologies and products and need visibility promotion? This farmer platform is providing extensive disseminating opportunity in European dimension, and You are most welcome to join. **How to connect to farmer platform?**

Top

[Subscribe to the NUTRIMAN Newsletter](#)

[Farmer Platform](#)

[Contact for more information](#)

[Farmer Survey](#)







# Characteristics of the NUTRIMAN web platform

The production [technology](#) on the platform have been divided into categories:

1. Biological Nutrient recovery: Composting, anaerobic digestion, microalgae technology;
2. Phosphorus precipitation from liquid manure, waste water and drain water;
3. Thermochemical Nutrient Recovery;
4. Physic-chemical nitrogen recovery from manure, digestate and wastewater: separation, stripping and membrane processes.

The platform contains the **direct contacts**:

- fertilizer manufactures
- the developers of each of the technologies

# NUTRIMAN Farmer Platform – Technology cards

<https://nutriman.net/farmer-platform/technology>

NUTRIMAN - NUTRIent MANAGEMENT and Nutrient Recovery Thematic Network

THE PROJECT + NEWS MEDIA + EVENTS LINKS CONTACT - ASK NUTRIMAN FAQ EU FERTILISER REGULATION + FARMER SURVEY FARMER PLATFORM

FARMER SURVEY

SURVEY

LANGUAGES

Clear all filters

Search bar

ID

Keyword

Technology category

- Any -

Country

- Any -

Technologies

3R Recycle-Reuse-Reduce zero emission pyrolysis technology for phosphorus recovery from food grade animal bone grist for production of Bio-Phosphate products (ID:193)

Hungary Prior to market introduction

TRL 8

Reductive thermochemical Phosphorus recovery

Last updated: 14-05-2021

Technology for P recovery as struvite starting from pig manure/digestate with fluidized bed crystallization system (ID:256)

Spain Advanced development stage

TRL 6

Phosphorus precipitation from manure/digestate

Last updated: 15-04-2021

Technology for N Recovery as liquid ammonium sulphate or ammonium nitrate starting from separated liquid slurry with "Circular Values" stripping and scrubbing process (ID:265)

Netherlands Available on the market

TRL 9

Stripping + Scrubbing

Last updated: 31-03-2021

Technology for N & P recovery as liquid and solid organic fertilizer from manure and digestate with decanter centrifuge (ID:1343)

Germany Available on the market

TRL 9

Physical separation

Last updated: 18-03-2021

Technology for N recovery as ammonium sulphate from co-digestion of corn silage, chicken manure and other biowaste by BENAS process (ID:668)

Germany Advanced development stage

TRL 8

Stripping + Scrubbing

Last updated: 18-03-2021

Technology for N recovery as mineral concentrate, ammonia water and ammonium sulphate from manure/digestate by VP-Hobe manure and digestate valorisation system (ID:669)

Netherlands Available on the market

TRL 9

Stripping + Scrubbing

Last updated: 18-03-2021

TECHNOLOGY CARDS with Title and ID number



# Characteristics of the NUTRIMAN web platform



The [products](#) present on the platform have been divided by category:

1. Compost and digestate (and Biomass);
2. Ash;
3. Struvite and other P-Products;
4. Pyrolysis materials: Biochar and Bio-Phosphate;
5. Scrubber water and mineral Nitrogen Concentrate

**Direct contact** are available:

- fertilizer manufactures
- the developers of each of the products

# NUTRIMAN Farmer Platform – Product cards

<https://nutriman.net/farmer-platform/product>

**PRODUCT CARDS with Title and ID number**

**Products**

**LANGUAGES**

**FARMER SURVEY**

**Search bar**

ID

Keyword

Product category

- Any -

**High nutrient dense Bio-Phosphate products recovered from food grade animal bone grist with over 30% P2O5 content by "3R zero emission pyrolysis" process (ID:192)**

Hungary

Prior to market introduction

TRL 8

Bio-Phosphate

Last updated: 14-05-2021

**COMPOST AS SOIL IMPROVER FROM GREEN WASTE BY TUNNEL COMPOSTING**

Poland

Available on the market

TRL 9

Compost

Last updated: 26-04-2021

**Ammonium sulphate from co-digestion of corn silage, chicken manure and other biowaste by BENAS process (ID:667)**

Germany

Advanced development stage

TRL 8

Ammonium nitrate/sulphate

Last updated: 23-04-2021

**Terra-Preta biochar product recovered from wood chips and processed by "3R" high temperature pyrolysis process. (ID: 1571)**

Biochar

**Ammonium sulphate from pig manure or digestate with VP-Hobe Manure Valorisation system (ID: 1529)**

Netherlands

Available on the market

TRL 8

Ammonium nitrate/sulphate

**Nitrogen and potassium concentrate from pig manure or digestate with VP-Hobe Manure Valorisation system (ID: 1528)**

Netherlands

Available on the market

## NUTRIMAN Farmer Survey

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**Farmers, Users and interested stakeholders kindly asked to return Product and/or Technology Mini Surveys. Thank you.**

- 8 languages can be selected and takes 1 minute to return only. Receiving feed backs from farmers is important.
- Any technology / product can be mini survey evaluated and responded, just pls select ID. Example:
- [https://nutriman.net/farmer-platform/product/id\\_192#mini-survey](https://nutriman.net/farmer-platform/product/id_192#mini-survey)
- NUTRIMAN international conference: September 16, 2021
- <https://nutriman.net/conference>
- NUTRIMAN biochar conference: September 17, 2021
- <https://nutriman.net/conference>





# Nutrient Management and Nutrient Recovery Thematic Network

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[www.nutriman.net](http://www.nutriman.net)



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