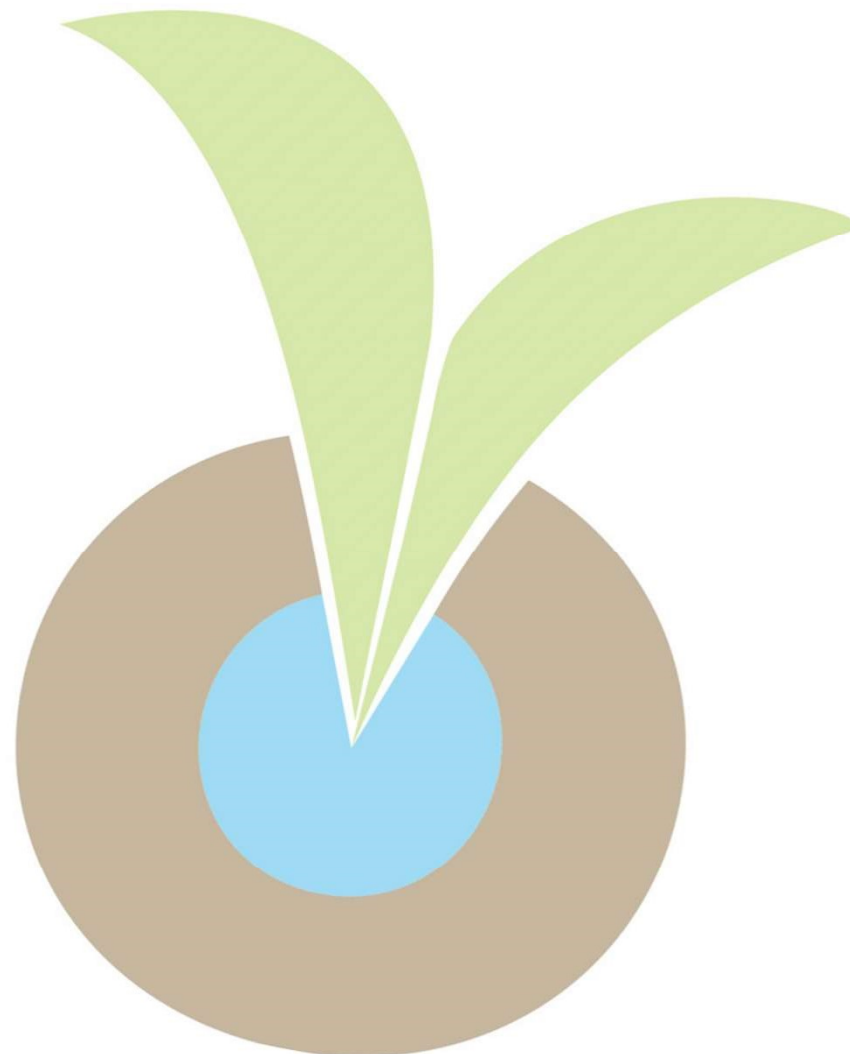


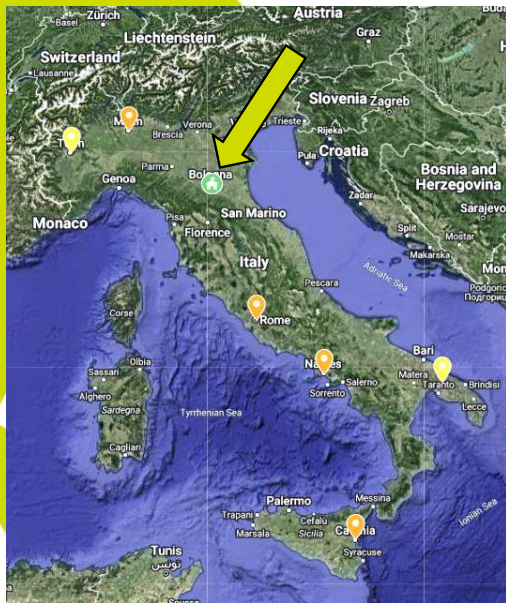
The signal of water: stable isotopes from rain to table

Francesca Scandellari





U-SERIES



❖ Radioprotection

❖ Radioactivity

- ❖ Gamma spectrometers with Hyperpure Germanium detectors
- ❖ Liquid scintillators for alpha and beta emitters
- ❖ Alpha spectrometers with silicon detectors
- ❖ Nuclear traces with optical microscopy

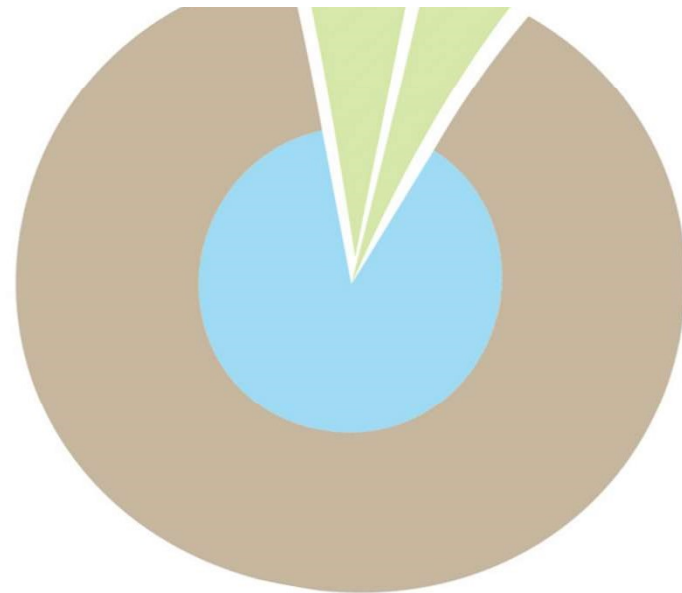
❖ Stable isotopes

❖ TC/EA-IRMS

U-Series Srl, Via Ferrarese, 131, 40128 Bologna
Tel. +39 051 6312418

WATER isotopes in the critical zONE: from groundwater recharge to plant transpiration


WATSON





Funding organisation for
research and innovation networks



**Funded by
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www.cost.eu

COST members
41 countries



Our COST Action

Network of **researchers and stakeholders**

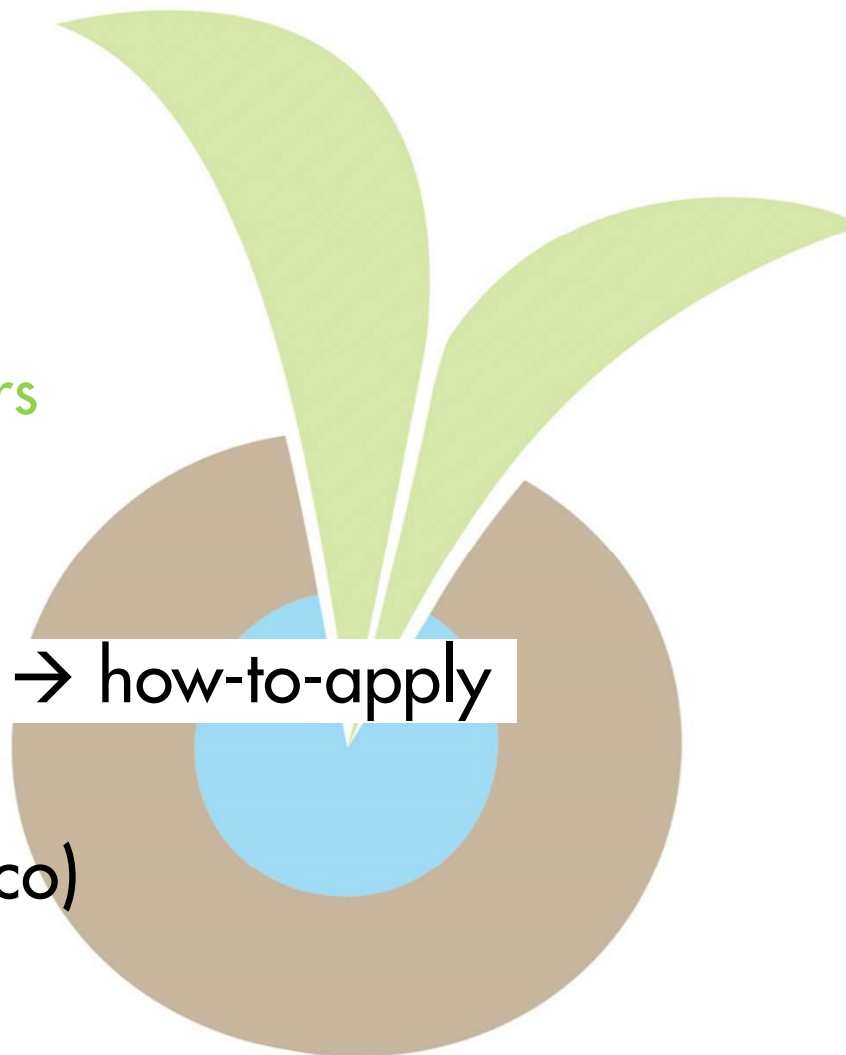
- 2020-2024
- 191 members
- 37 countries
- 1 near neighbor country (Morocco)



Our COST Action

Network of **researchers and stakeholders**

- 2020-2024
- 191 members → watson-cost.eu → **how-to-apply**
- 37 countries
- 1 near neighbor country (Morocco)



Aims

**Collect, integrate, and synthesize
knowledge**

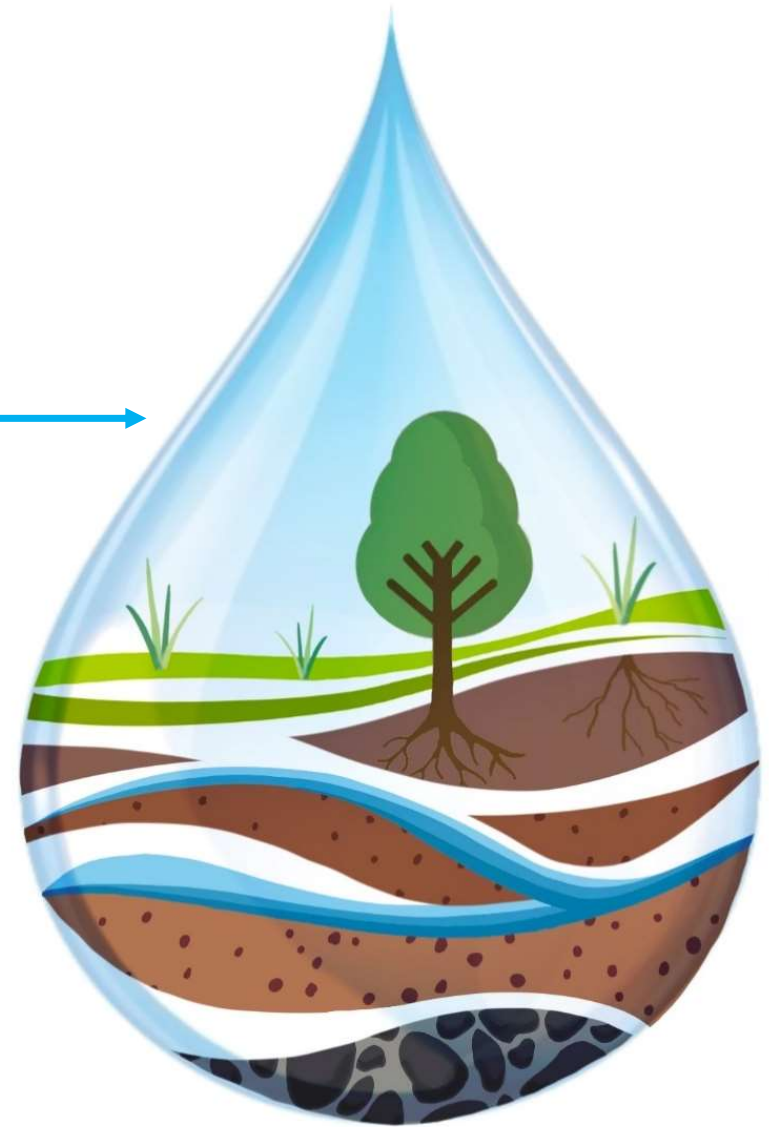
**partitioning and mixing of water in
the critical zone**

**stable isotopes in the water
molecule**



The critical zone

Top of the canopy



Groundwater



Activities

Networking activities

- Meetings, workshops, etc.
- Webinars
- Conferences
- Training schools
- Short term scientific missions
- Virtual missions

Research coordination

- Databases of isotope-based studies in the critical zone
- Define protocols, standardized sampling procedures, and guidelines for analysis
- Compare isotope-based methods and models

Activities

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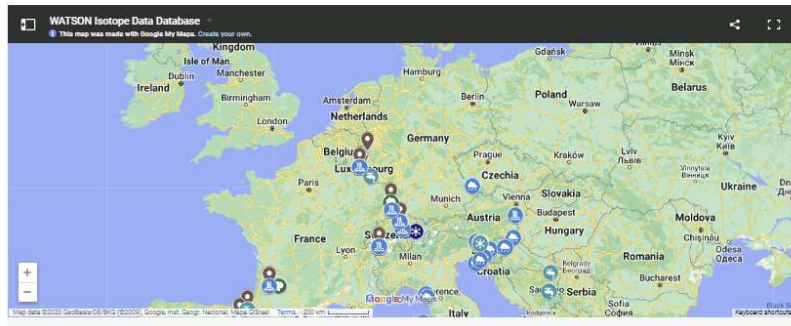
Research coordination

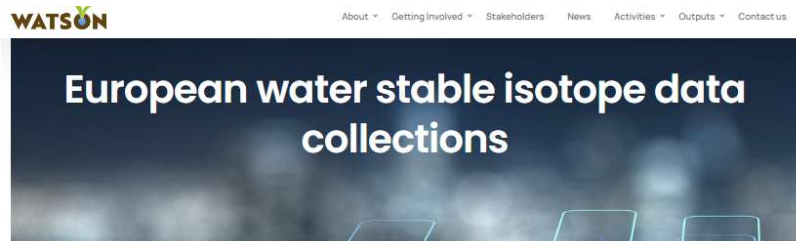
- **Databases of isotope-based studies in the critical zone**
- Define protocols, standardized sampling procedures, and analysis techniques
- Compare isotope-based methods and models

European water stable isotope data collections

One of the objectives of WATSON is to provide a database with stable isotope data collected in Europe. This database will make it easier to find existing isotope datasets and collaborators.

Do you want to add your data on the map as well? Then contact us at watson.cs@19120@gmail.com.

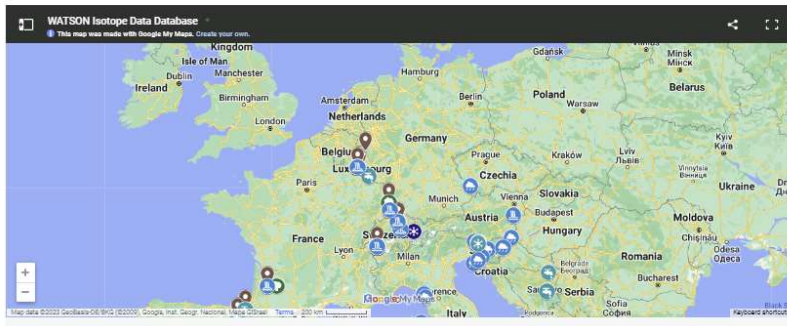


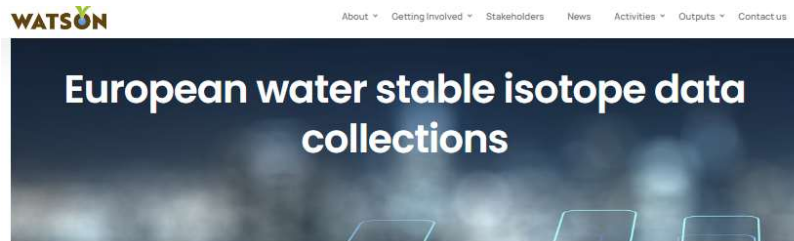


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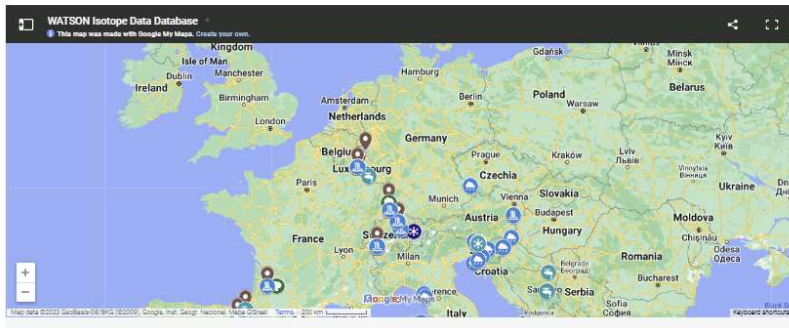
Do you want to add your data on the map as well? Then contact us at watson.ca19120@gmail.com.

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Do you want to add your data on the map as well? Then contact us at watson.cs@19120@gmail.com.



Challenges

Groundwater recharge rates



Vegetation water uptake and transpiration



Residence and transit time



Challenges



Groundwater recharge



Vegetation water uptake and transpiration



Residence and transit time

Working groups

WG1

WG2

WG3

Challenges



Groundwater recharge



Vegetation water uptake and transpiration



Residence and transit time

Working groups

WG1

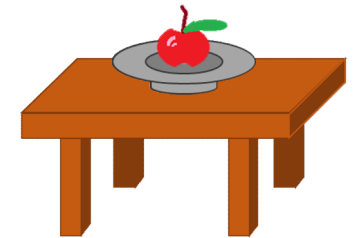
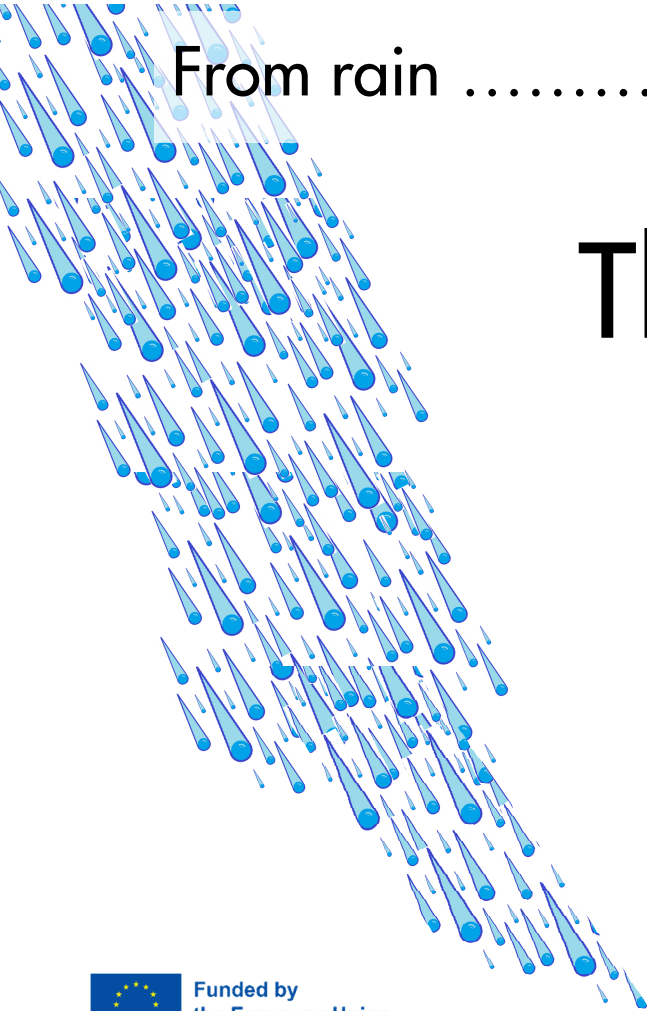
WG2

WG3

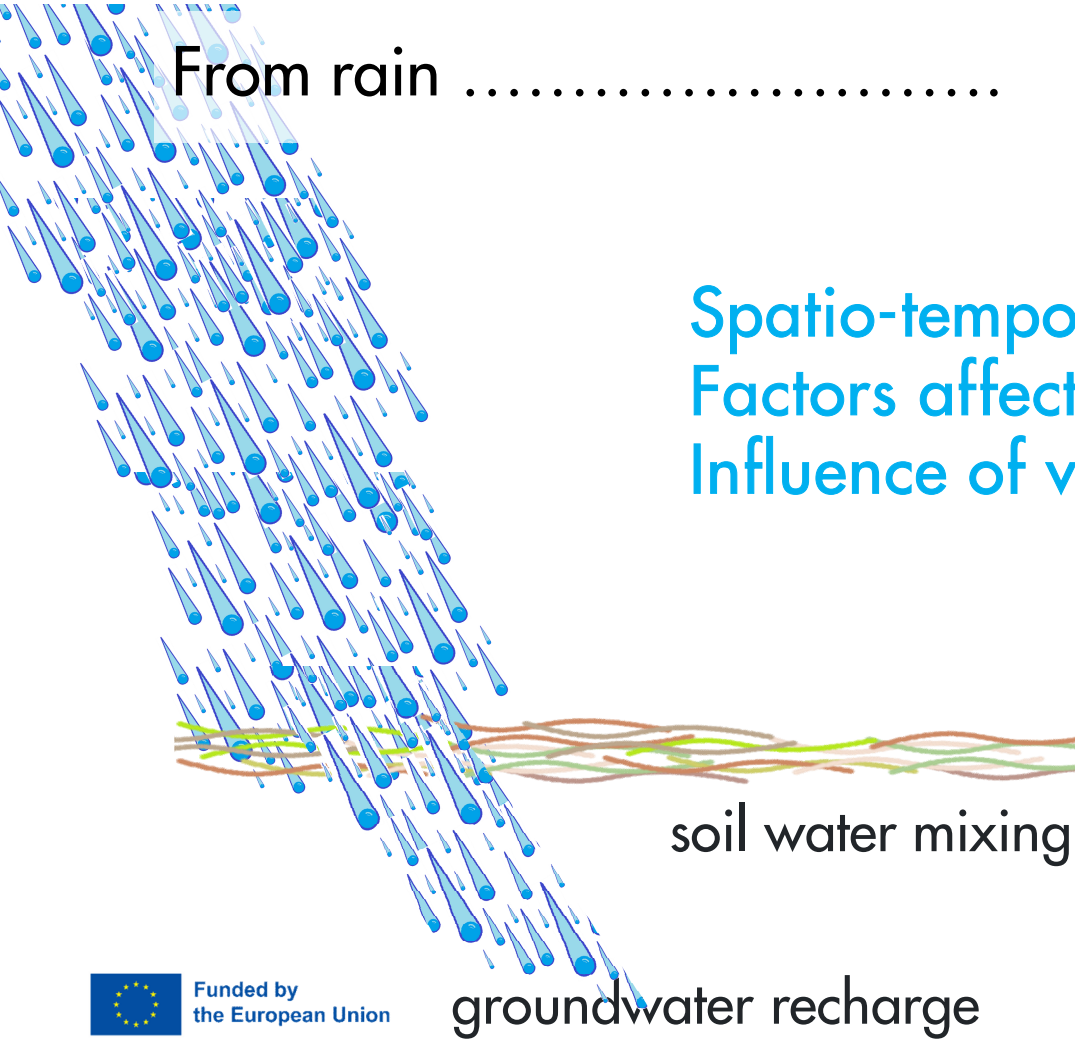


From rainto table

The signal of water

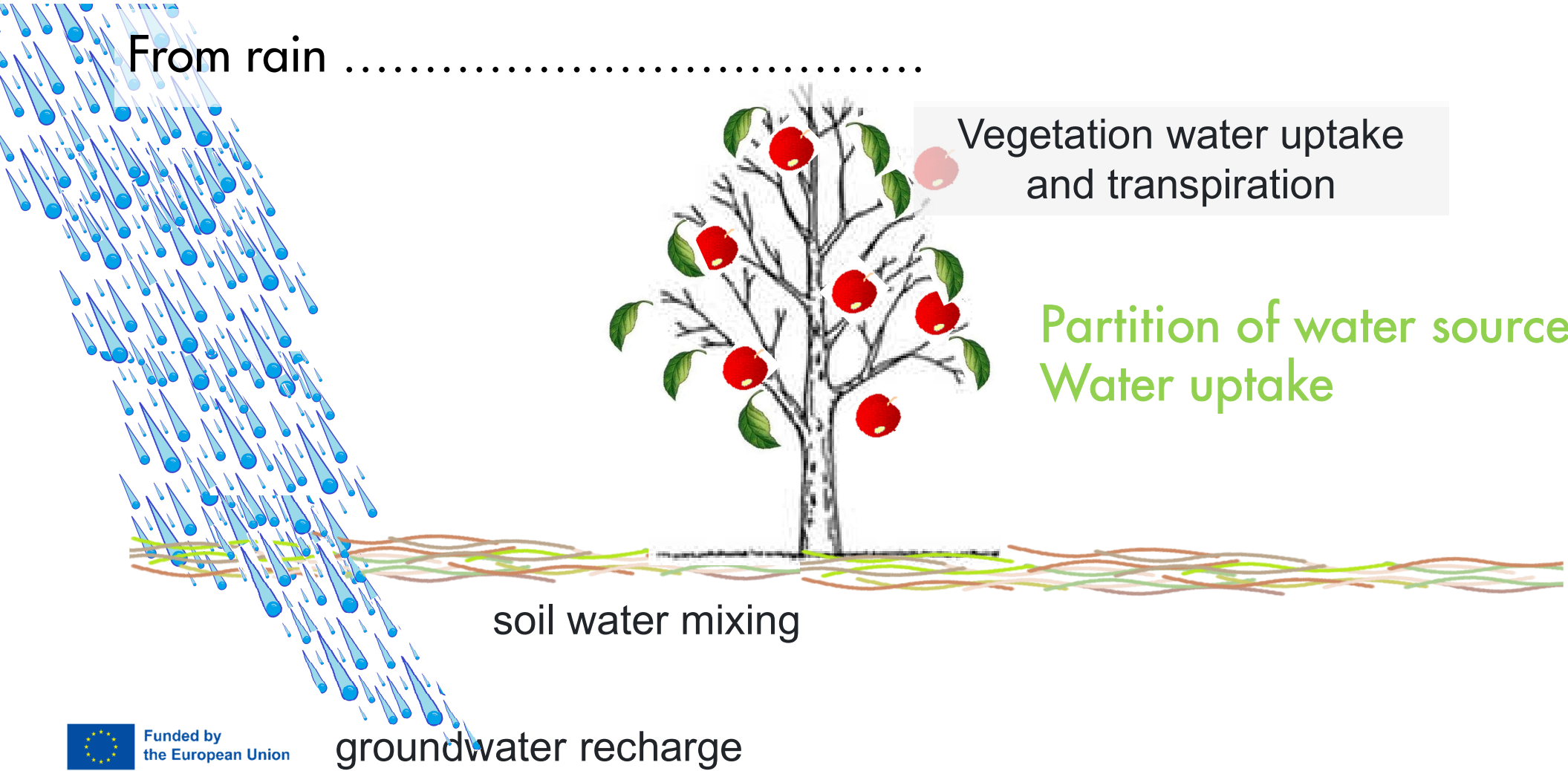


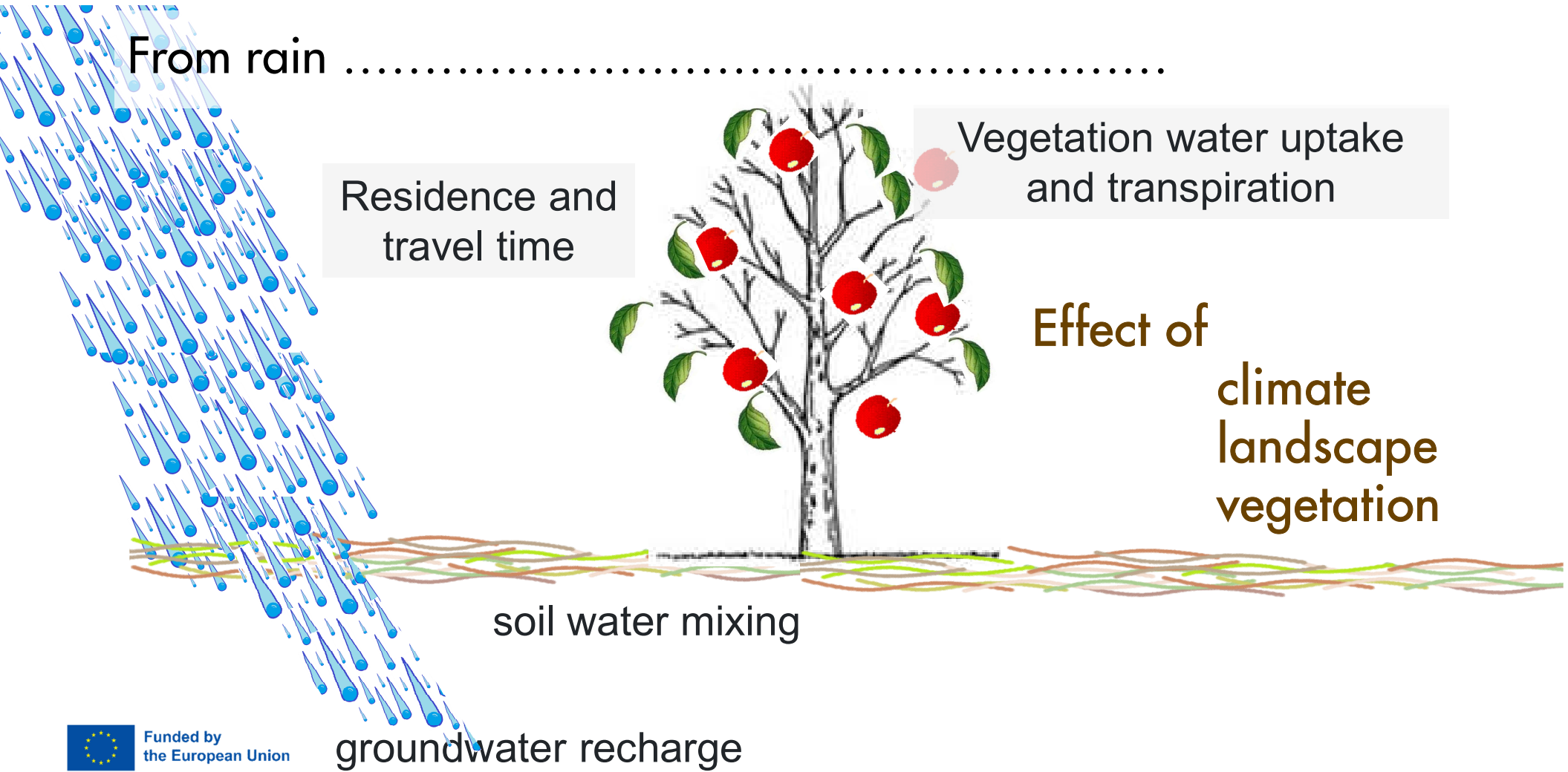
From rain



Spatio-temporal patterns
Factors affecting the mixing and storage
Influence of vegetation

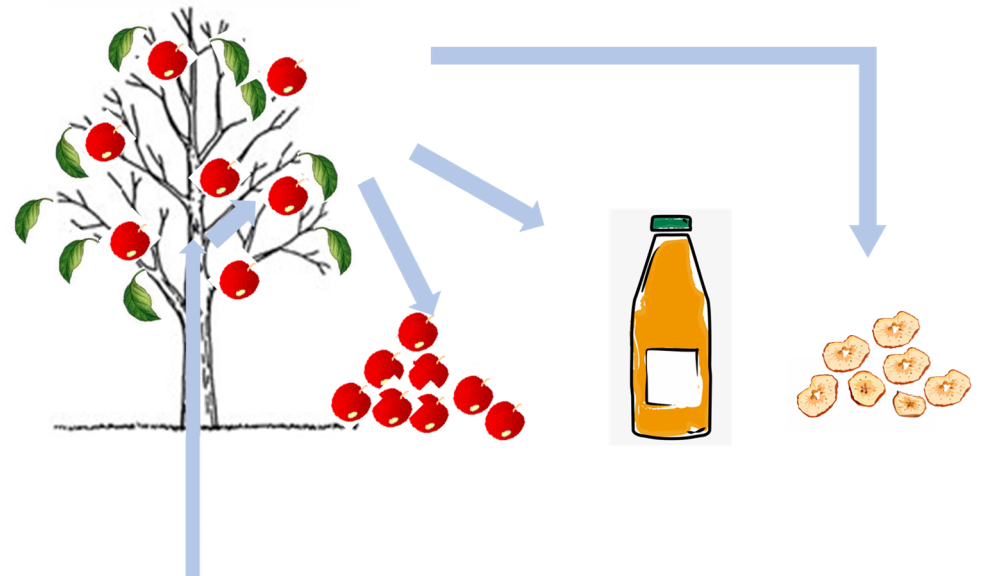
From rain



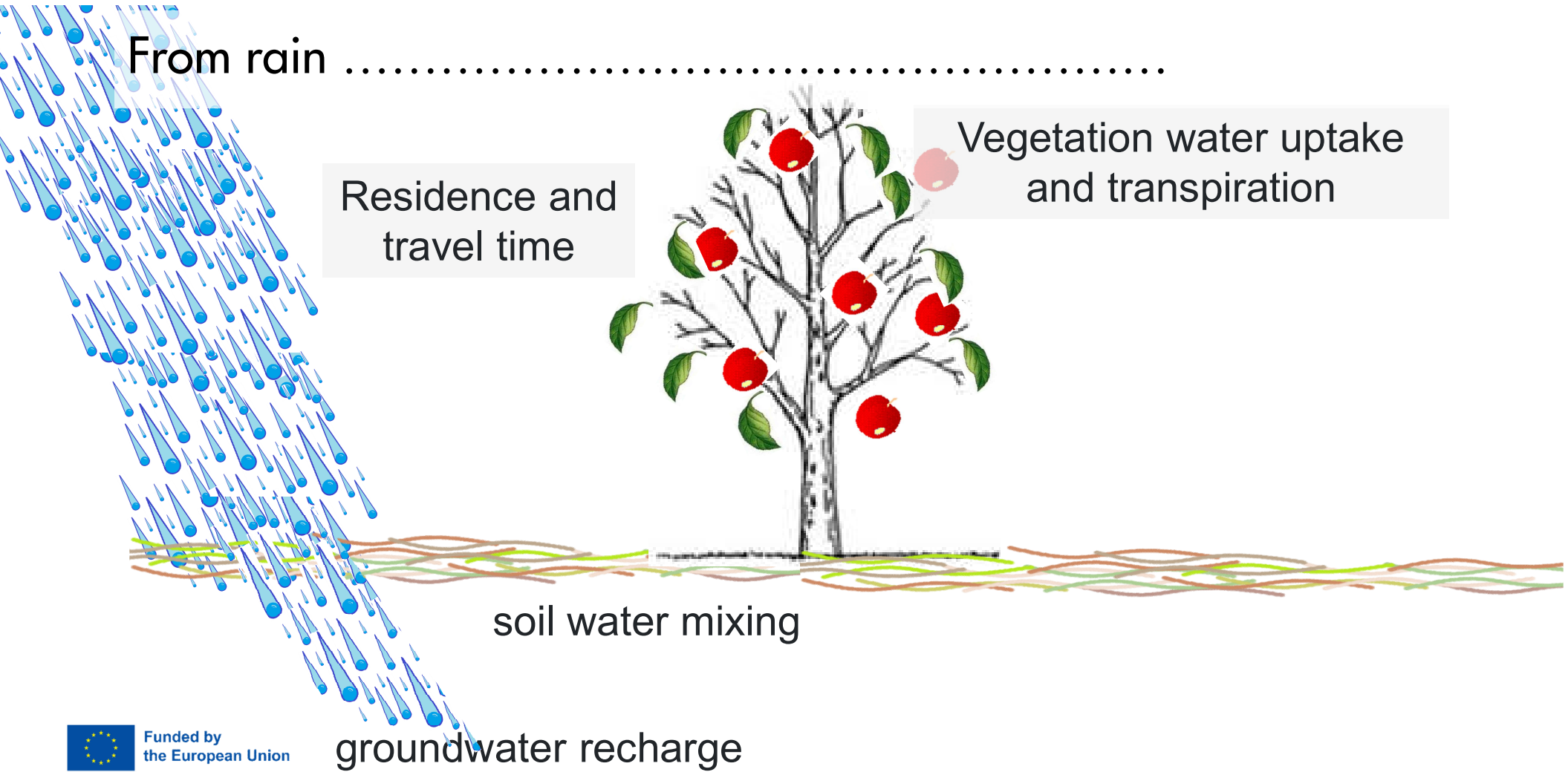


Potential to benefit the food sector

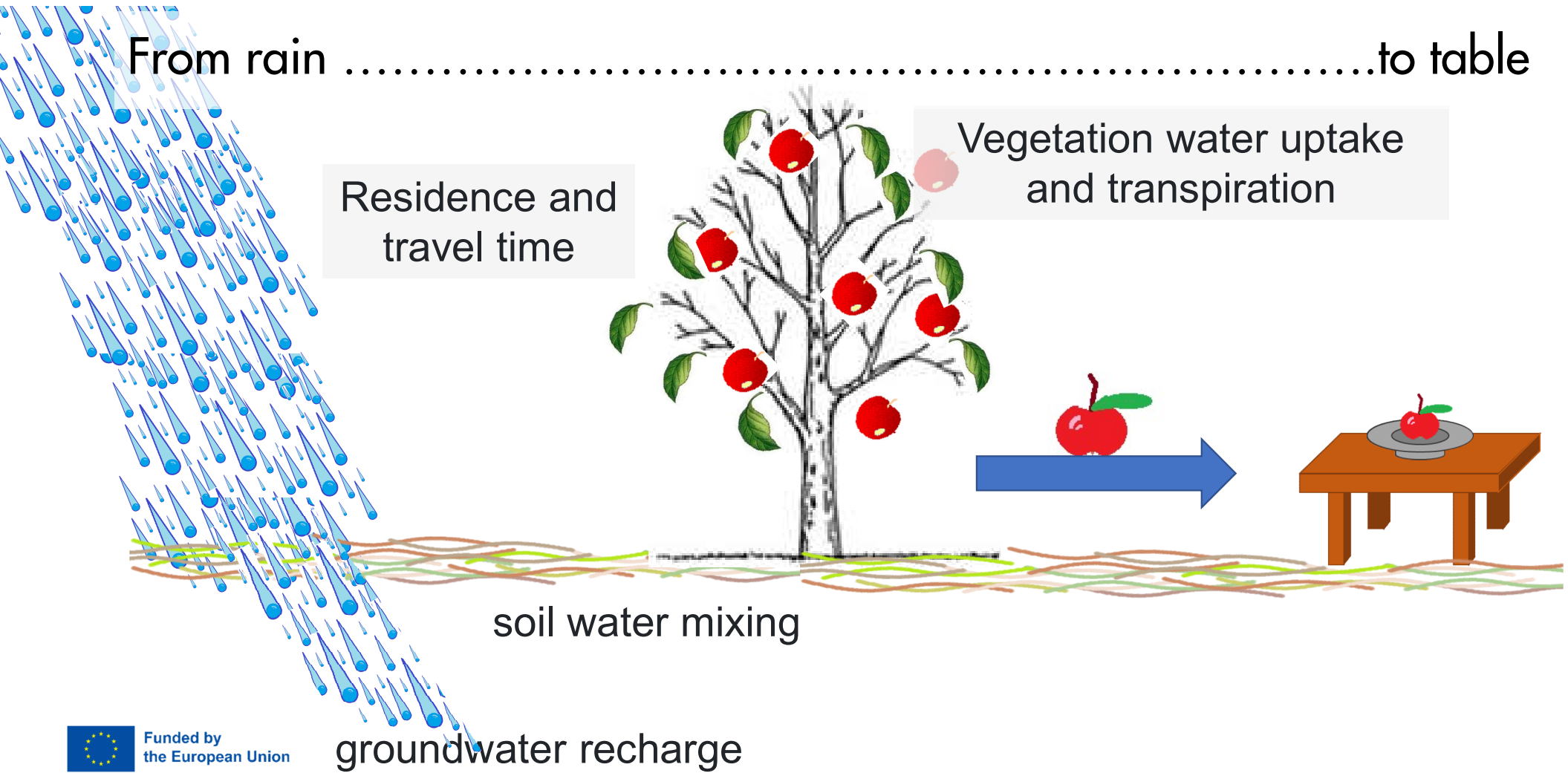
by improving the knowledge
of the processes influencing
the hydrogen and oxygen
stable isotope signature
in plants



Isotopic characterization of produce



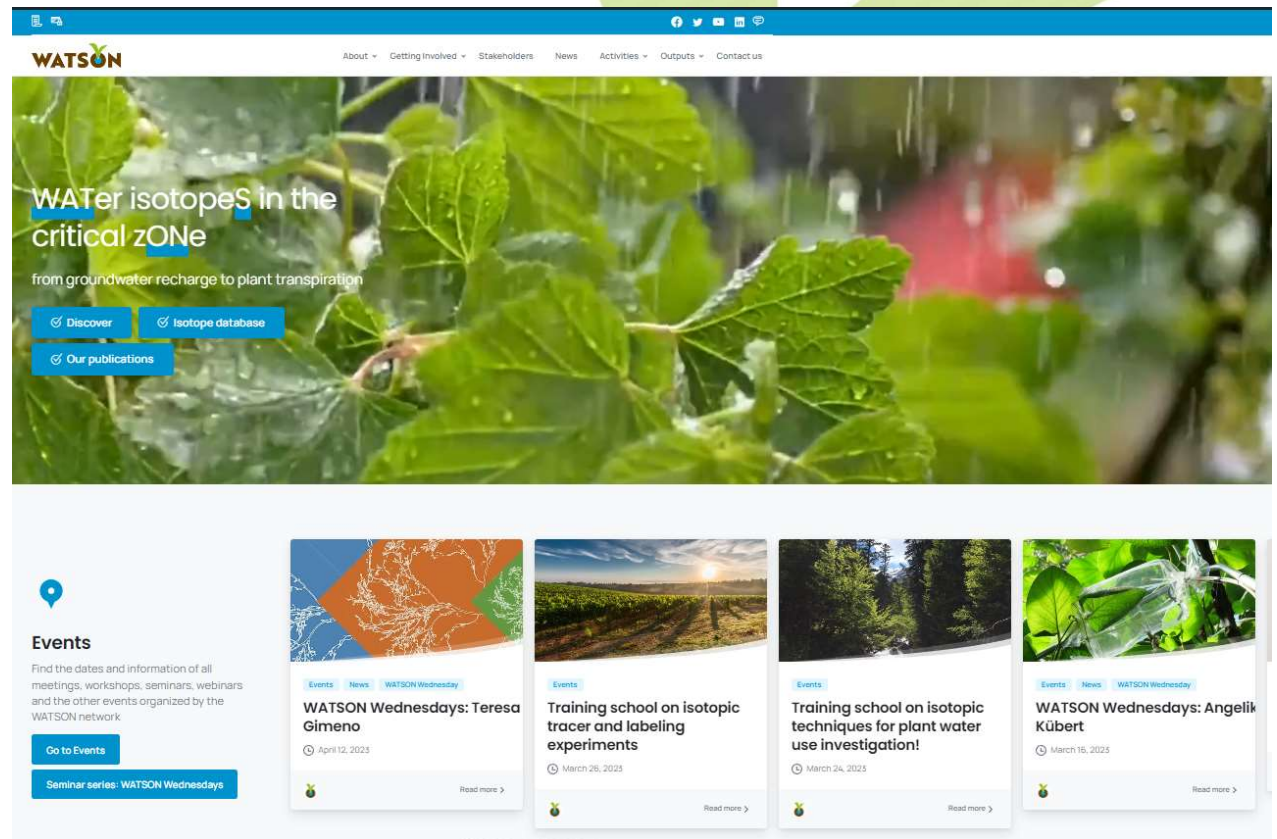
From rainto table



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www.cost.eu/actions/CA19120/



The screenshot shows the WATSON website homepage. At the top, there is a navigation bar with the WATSON logo and menu items: About, Getting Involved, Stakeholders, News, Activities, Outputs, and Contact us. The main header features a large image of green leaves with the text "WATER isotopes in the critical ZONE" and "from groundwater recharge to plant transpiration". Below this, there are three buttons: "Discover", "Isotope database", and "Our publications". The main content area is divided into sections. On the left, there is an "Events" section with a location pin icon, a description: "Find the dates and information of all meetings, workshops, seminars, webinars and the other events organized by the WATSON network", a "Go to Events" button, and a "Seminar series: WATSON Wednesdays" link. To the right, there are four event cards. The first card is titled "WATSON Wednesdays: Teresa Gimeno" with a date of April 12, 2023. The second card is titled "Training school on isotopic tracer and labeling experiments" with a date of March 26, 2023. The third card is titled "Training school on isotopic techniques for plant water use investigation!" with a date of March 24, 2023. The fourth card is titled "WATSON Wednesdays: Angelik Kübert" with a date of March 15, 2023. Each card includes a "Read more" link.



WATSON

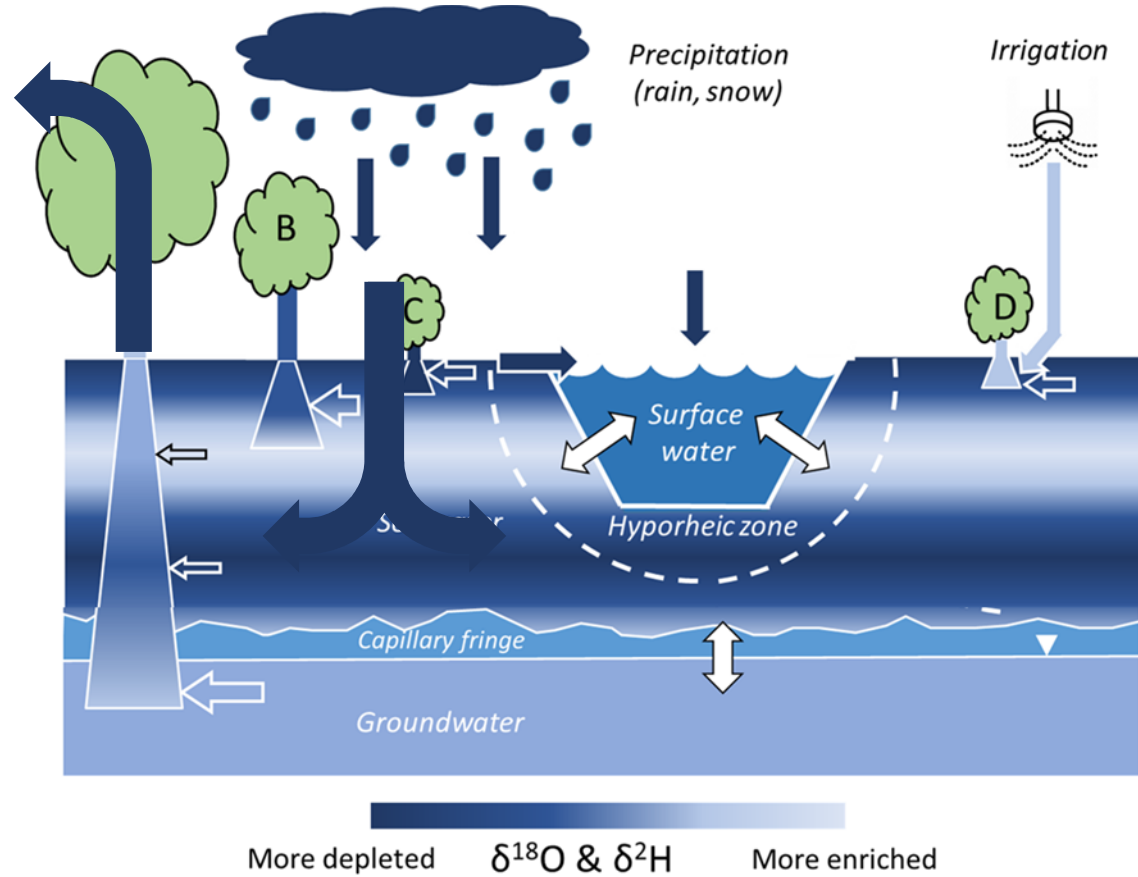
COST ACTION

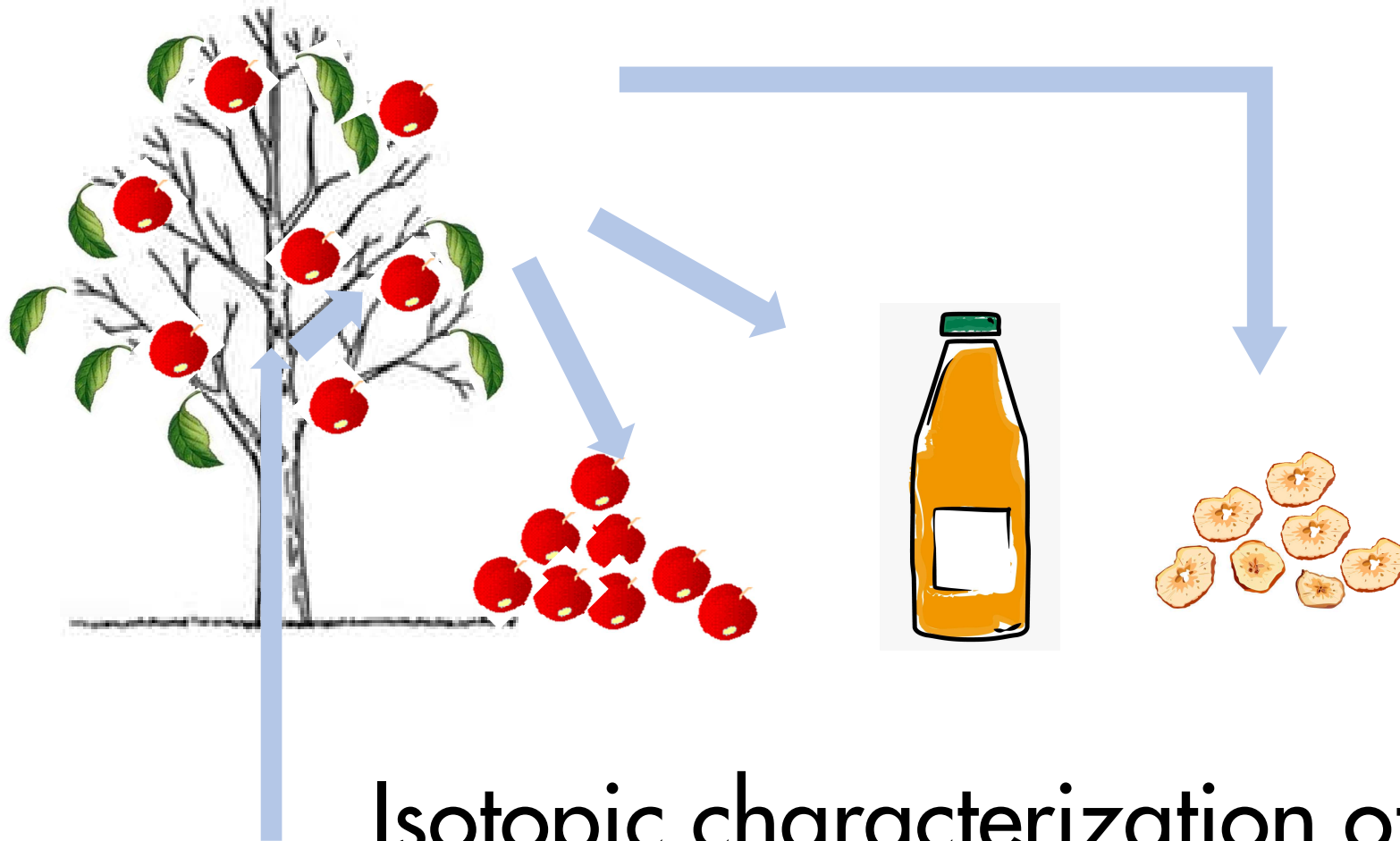






Roots access
different water
sources





Isotopic characterization of produce