

Why **irrigation** is fundamentally a data problem



Nursy 



What we will share with you **today**

- > Brief intro on us & Nursy
- > Irrigation as a decision-making problem
- > Where AI can (and cannot) help
- > What it takes to make AI work in the field
- > Lessons from real-world implementation
- > What is needed to scale in Europe

Hello, nice to **meet** you



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Nursy: the operating system for **nursery** management

Irrigation
Automatic

Fertilization
Precise

Stress & diseases
Always monitored



Why irrigation is **key** for Europe



+ 121%
extreme events

+40%
water scarcity

-20%
water quality

Irrigation decisions can no longer rely on **static rules**

Implementing **AI** in irrigation: three pillars



data collection layer

- > Sensors (soil, climate, wind, etc)
- > Images (drones)
- > Operational data (plant type, farmer decisions)



intelligence layer

- > Predict plant needs
- > Optimize irrigation timing
- > Detect stress signals

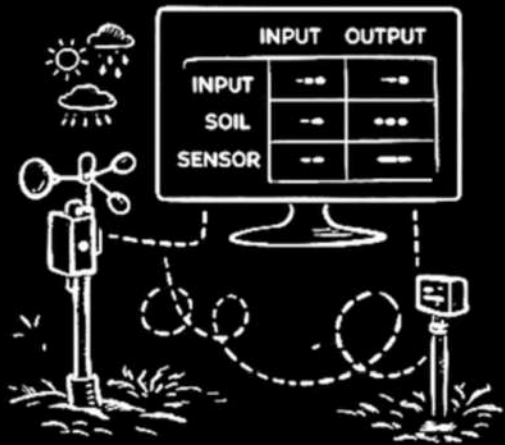


Execution layer

- > Control irrigation system
- > Automate decisions
- > Close the loop with feedback

AI works when connected to real world execution

AI in **irrigation**: challenges to scale



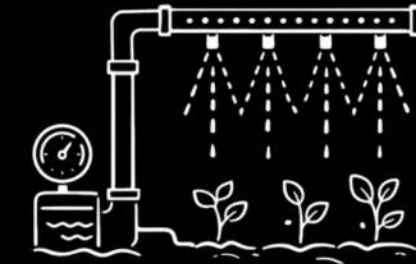
**Quality
of data**



**Farmer insights
not recorded**

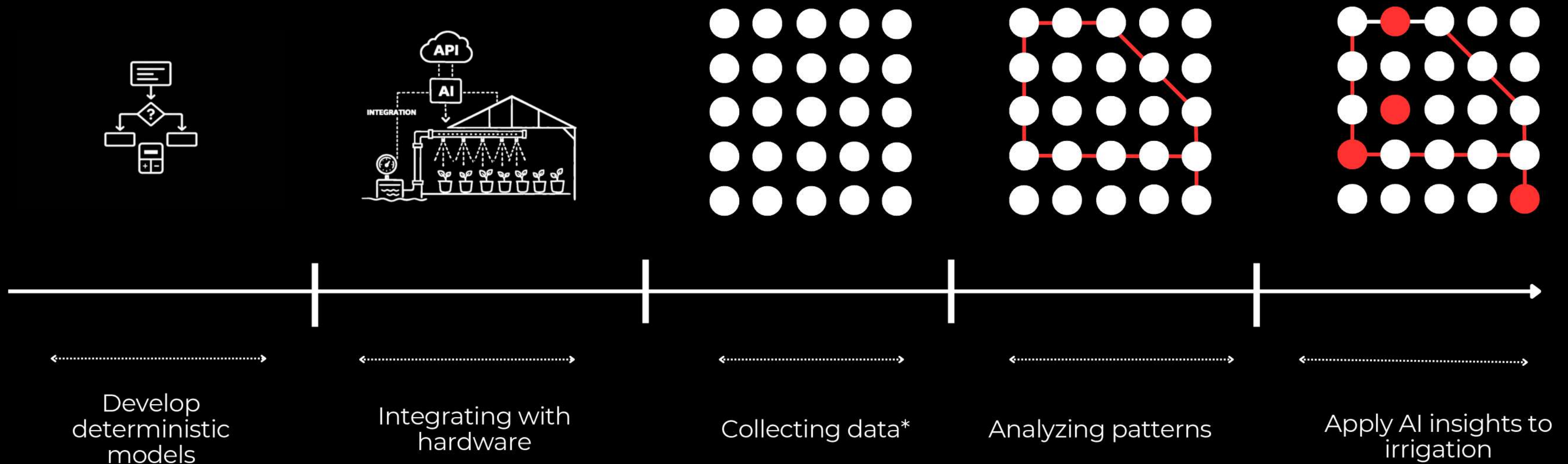


**Need for hyper
local data**



**Interoperability
& fragmentation**

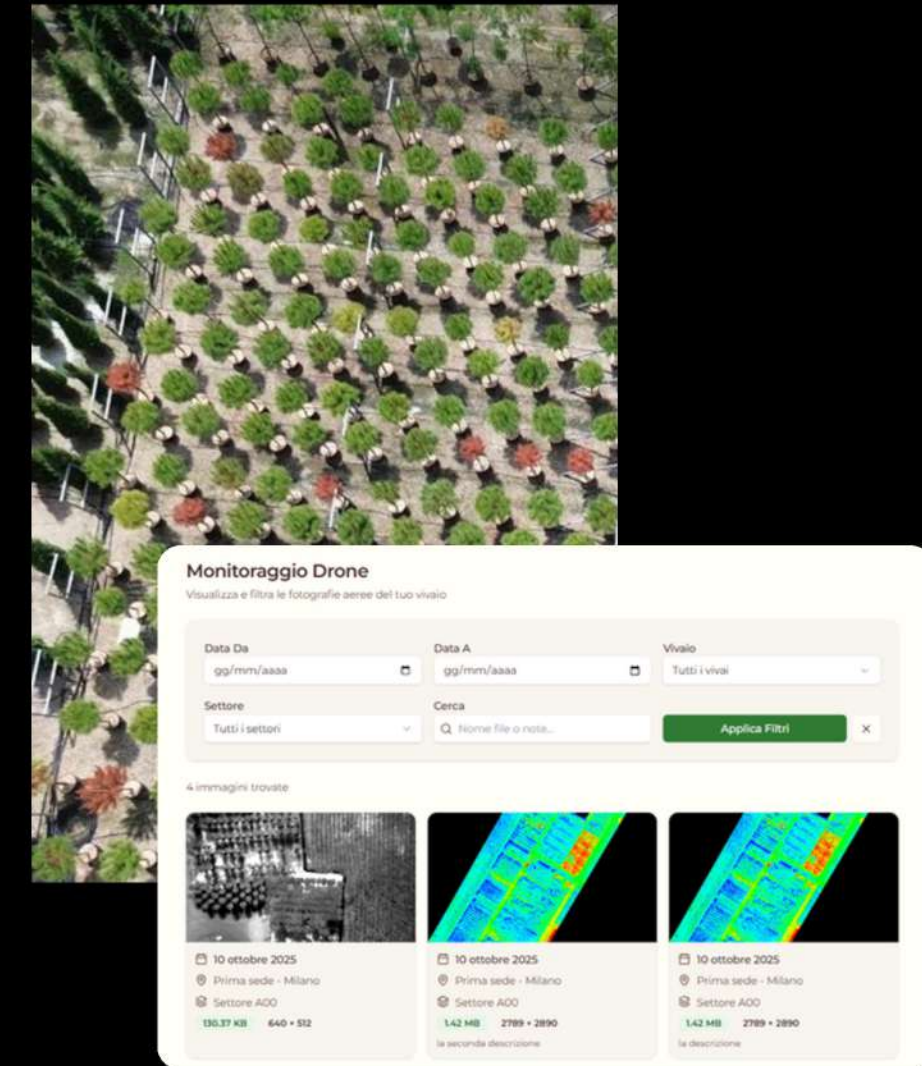
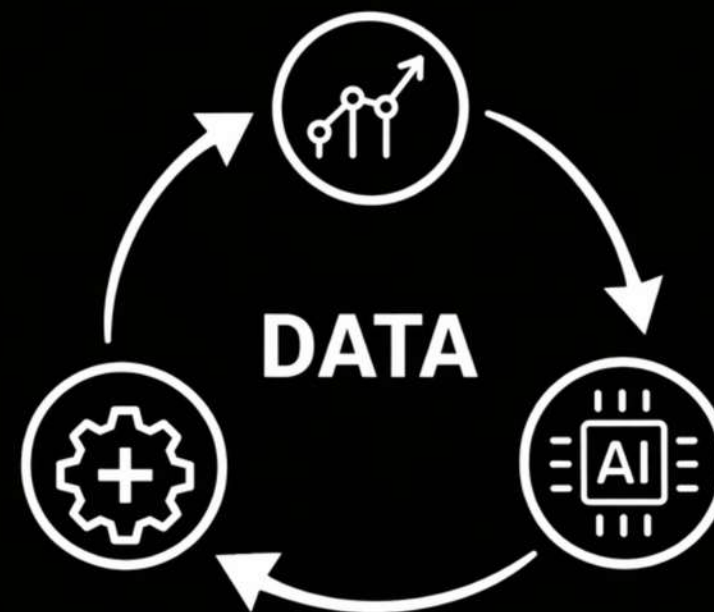
From theory to **practice**



Closing the **loop** between action & output



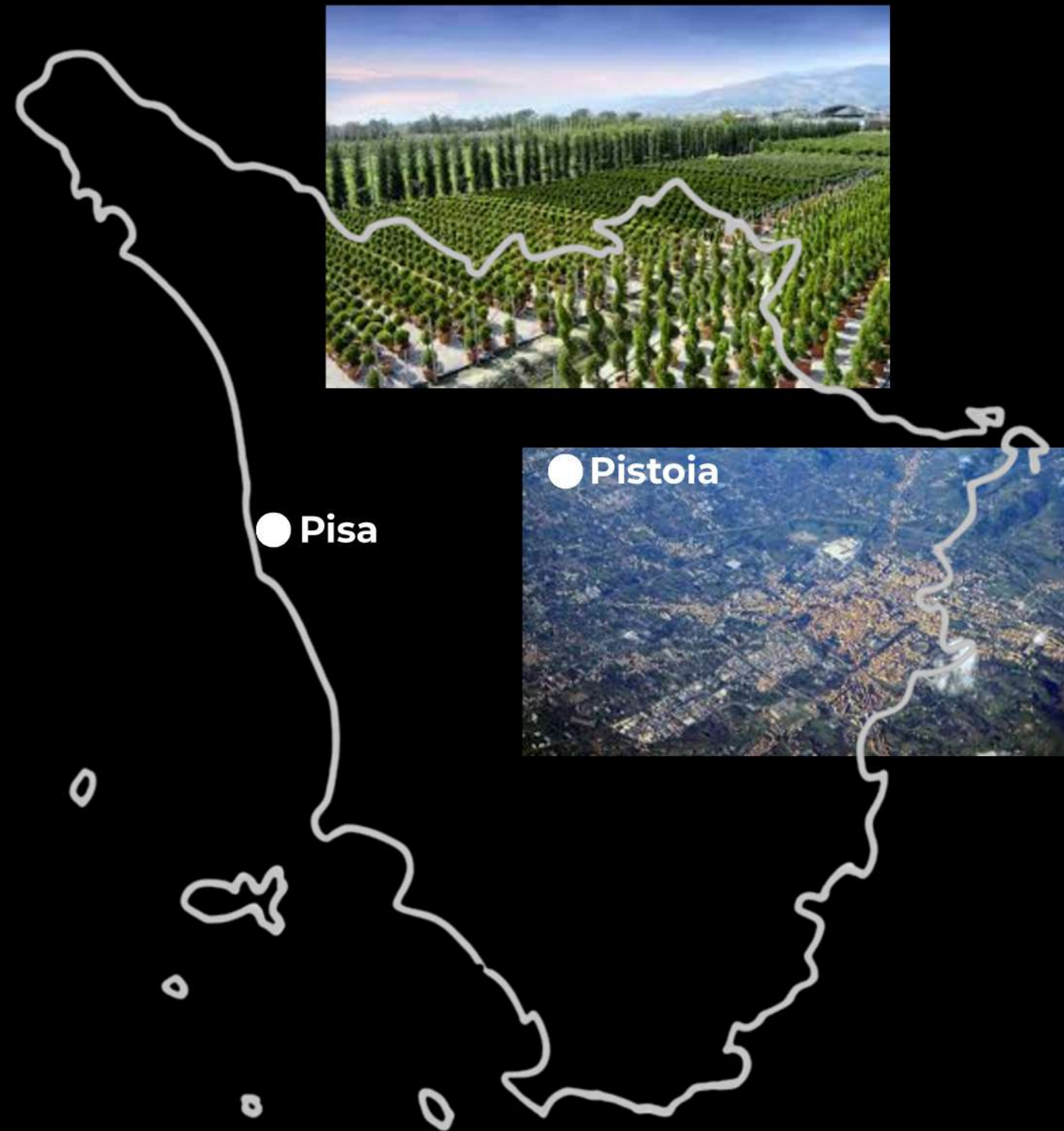
Static **algorithms** & **HW** integration live



Drone **monitoring** of different species over seasons

Scaling AI in irrigation can have real
world & **policy** impact

Pistoia: a local stress case that tells a **broader story**



~1500
companies

~10000
workers

~5500
hectars

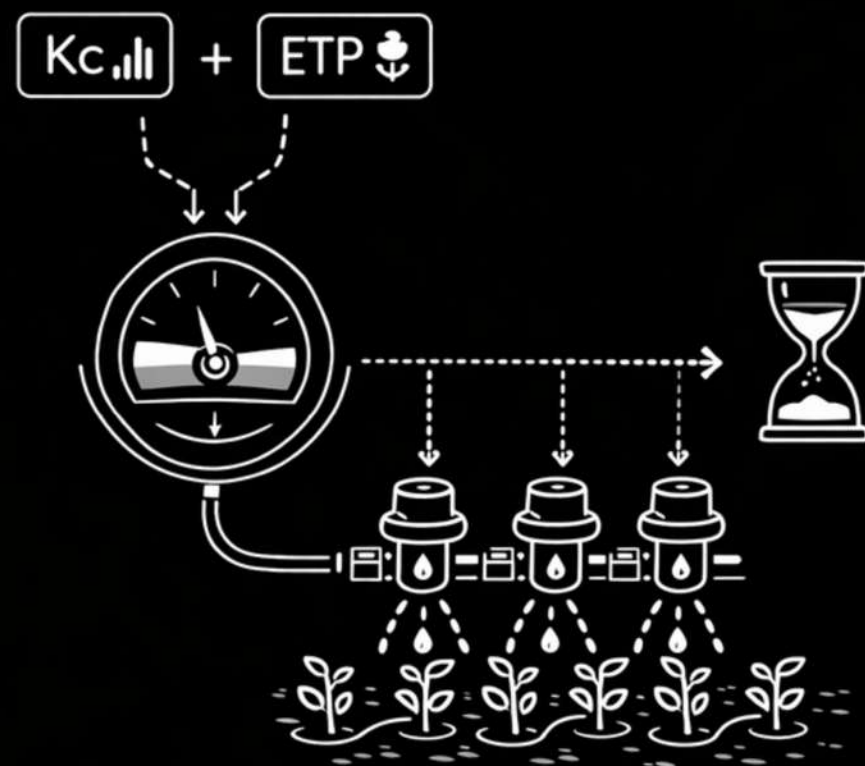
~1500 hectars
in soilless

soil holding
capacity:
40 mm

soilless holding
capacity:
8 mm

The water needs are higher then
Pistoia's: ~15B liters/year

AI-driven real world results

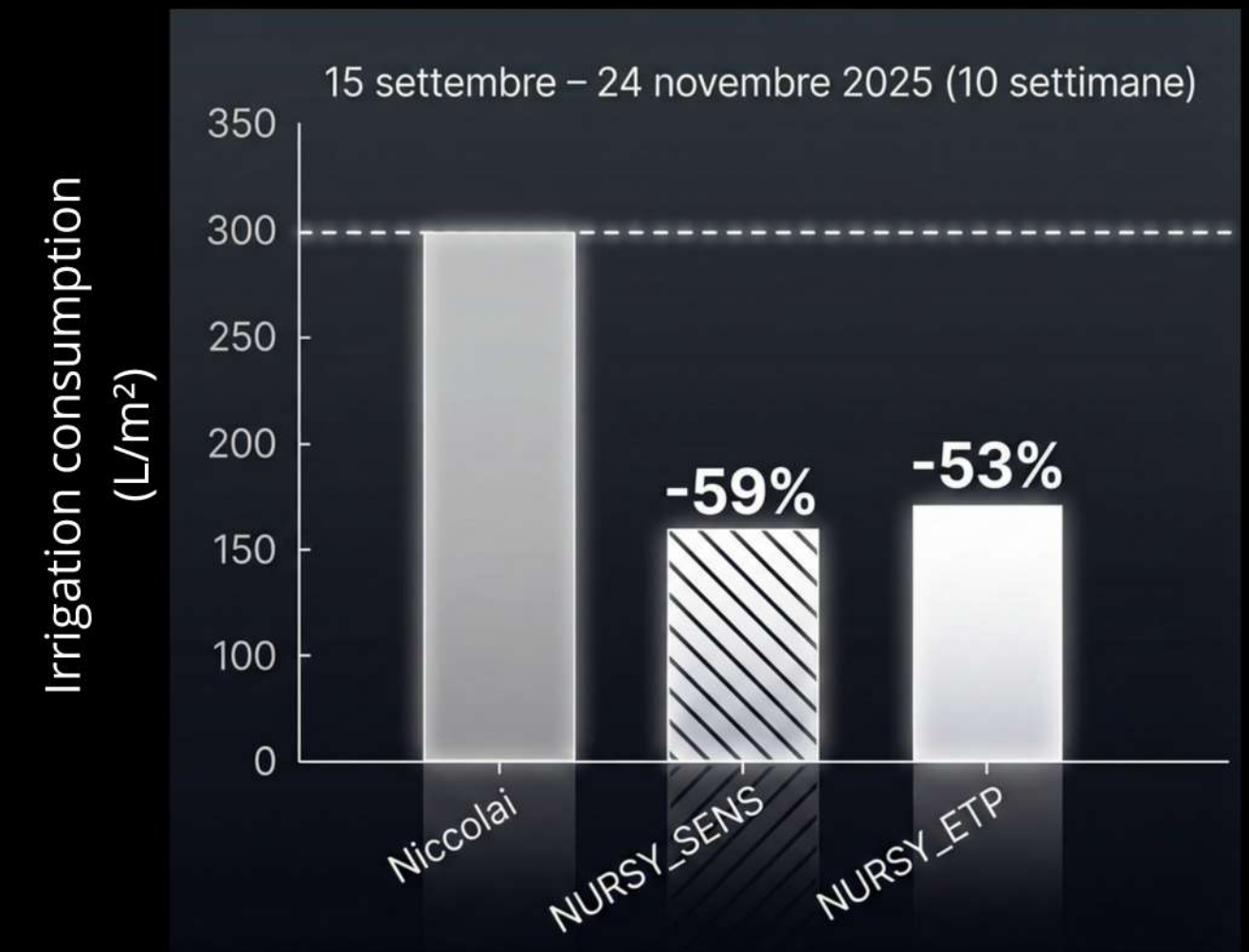


- 3 sectors compared
- 10 weeks of irrigation



-50%

Water Consumption



Key points & suggestions

1. Upgrade of irrigation systems

- Increase penetration of smart irrigation systems beyond current levels (~40%)

2. Interoperability & standards

- Open APIs between systems

3. Data availability

- Access to high-quality, standardized datasets
- Support for data collection at scale

4. Policy & funding alignment

- Recognize irrigation as a strategic sector
- Enable investment through EU frameworks





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Nursy 

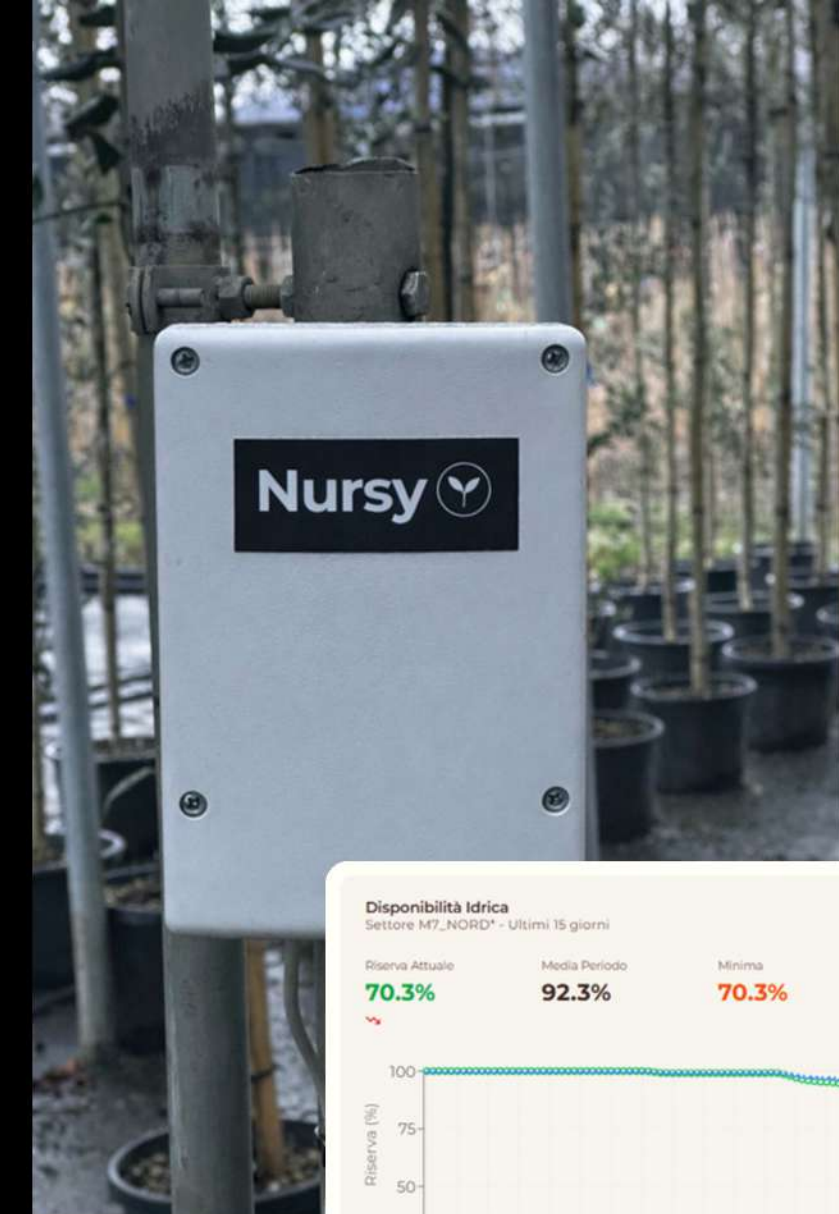
Precise & automatic Irrigation

THE RIGHT QUANTITY, AT EACH MOMENT

Nursy **scientifically** determines each plant's needs based on weather, soil, substrate, and other factors.

AUTOMATING THE IRRIGATION SYSTEM

Once the water need is identified, Nursy **automatically** activates the valves.



-50%
Consumo acqua

50% reduced water use

Disponibilità Idrica

Settore M7_NORD* - Ultimi 15 giorni

7gg

15gg

30gg

Riserva Attuale

70.3%

Media Periodo

92.3%

Minima

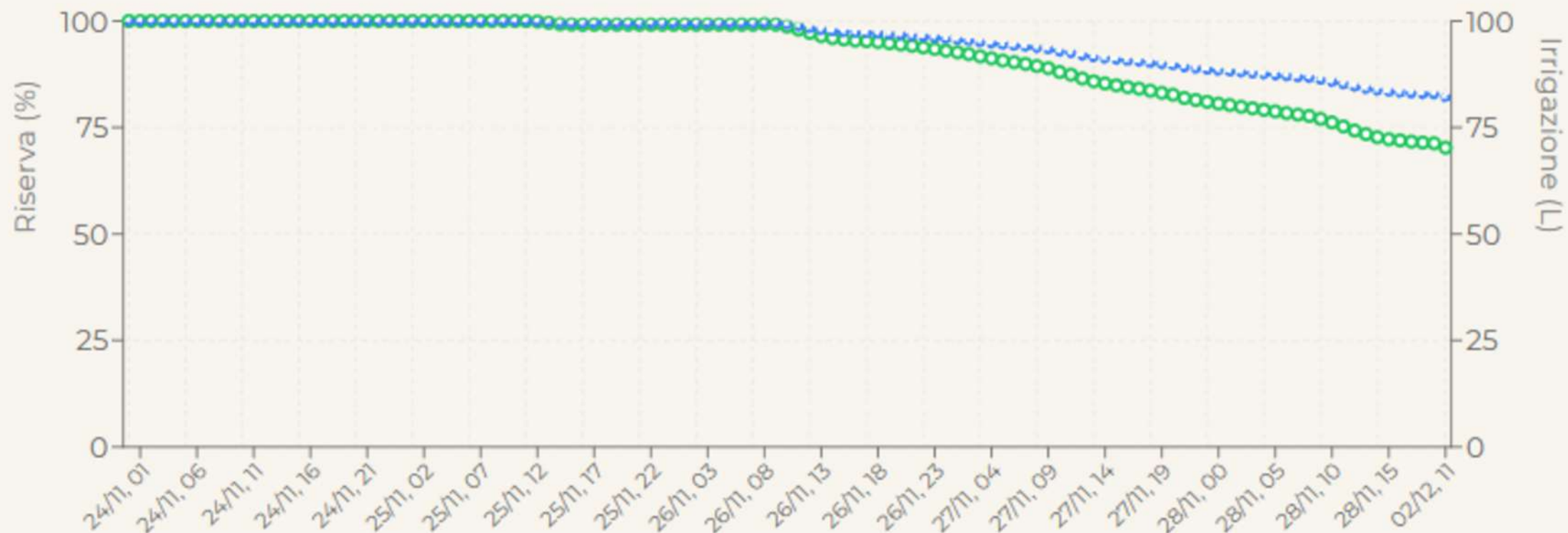
70.3%

Massima

100.0%

Tot. Irrigato

0 L



◆ Irrigazione (L) ◆ Riserva Facile (%) ◆ Riserva Totale (%)

● < 30% - Critico ● 30-50% - Attenzione ● > 50% - Ottimale

Precision fertilization

MONITORING

Nursy **determines**, in real time, the nutrients still available in the root's zone

FERTILIZE ONLY WHEN NEEDED

Apply new fertilizer only when **necessary**, using the optimal amount for the plant's growth.



-25%
Fertilizers

25% reduced fertilizer use

Calcolo Fertilizzazione CRC

Simula la cessione dei concimi a rilascio controllato (CRC) con miscela di due prodotti e tecnologia dual coating

Date

Preparazione substrato (PREP)

05/11/20

Trapianto (TRAP)

12/11/202

Temperatura & GDD

Modalità avanzata



Tmedia

PREP→TRAP (°C)

16

Giorni da simulare dopo

TRAP

120

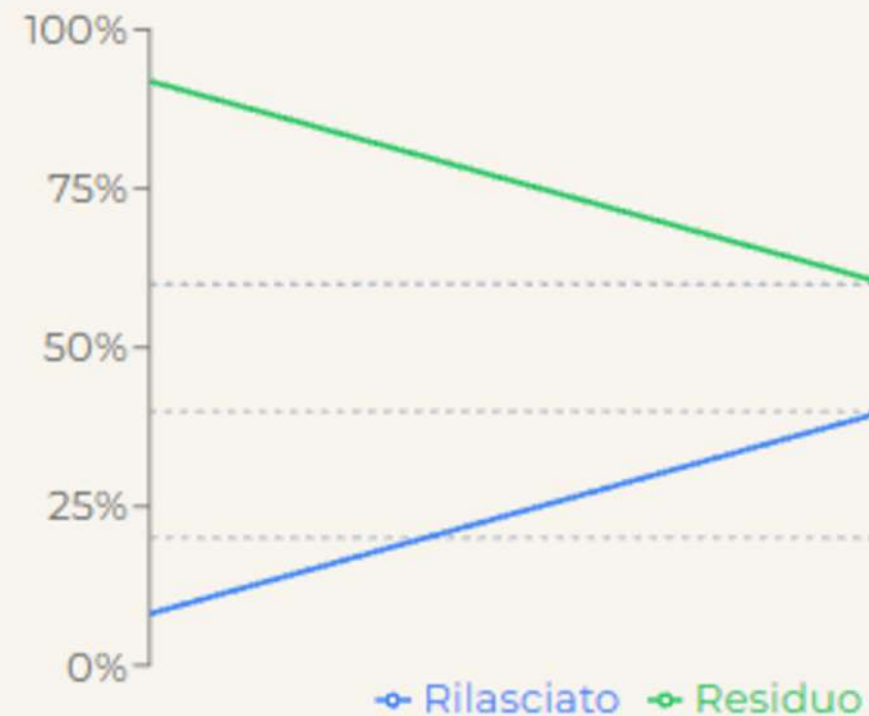
Tmedia dopo TRAP (°C)

17

Andamento cessione

Rilascio e residuo di EC nel tempo

GDD iniziali (PREP→TRAP): 112



Concime residuo



43%
stima
residuo

Stato oggi: 43.4% residuo

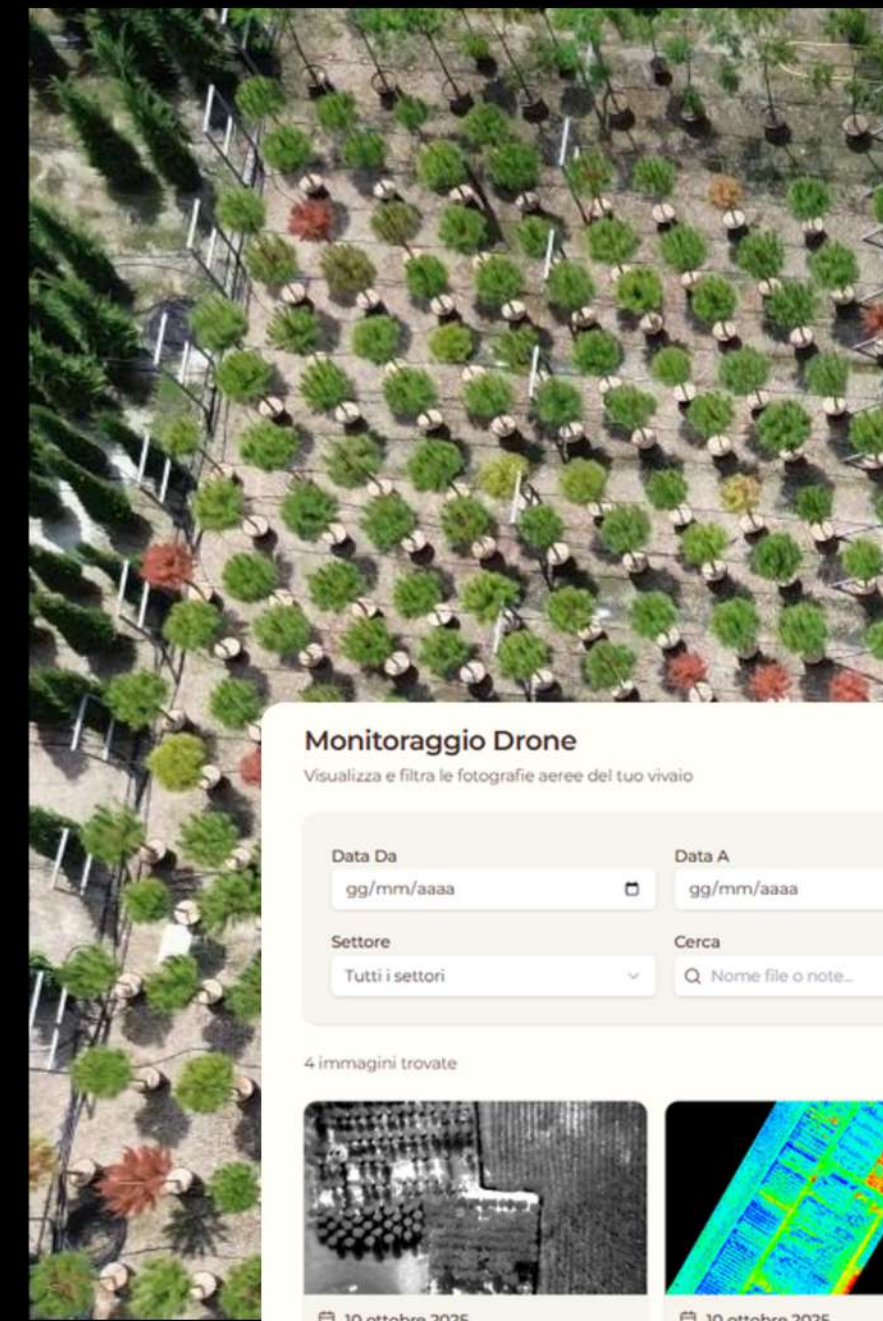
Abiotic & biotic stress prediction

STRESS ASSESSMENT

Promptly **detects** water-related, nutritional, and pathological stress or other issues in the nursery

WASTE REDUCTION

Early detection of stress, combined with irrigation, precision fertigation, and timely applications of pesticides, **reduces** unmarketable plants **by 50%**



Monitoraggio Drone
Visualizza e filtra le fotografie aeree del tuo vivaio

Data Da: gg/mm/aaaa Data A: gg/mm/aaaa Vivaio: Tutti i vivai

Settore: Tutti i settori Cerca: Nome file o note... **Applica Filtri**

4 immagini trovate

Immagine	Data	Località	Settore	Dimensioni
	10 ottobre 2025	Prima sede - Milano	Settore A00	130.37 KB 640 x 512
	10 ottobre 2025	Prima sede - Milano	Settore A00	1.42 MB 2789 x 2890
	10 ottobre 2025	Prima sede - Milano	Settore A00	1.42 MB 2789 x 2890

-50%
Less plant loss

50% reduced plant loss

Monitoraggio Drone

Visualizza e filtra le fotografie aeree del tuo vivaio

Data Da

Data A

Vivaio

Settore

Cerca

4 immagini trovate

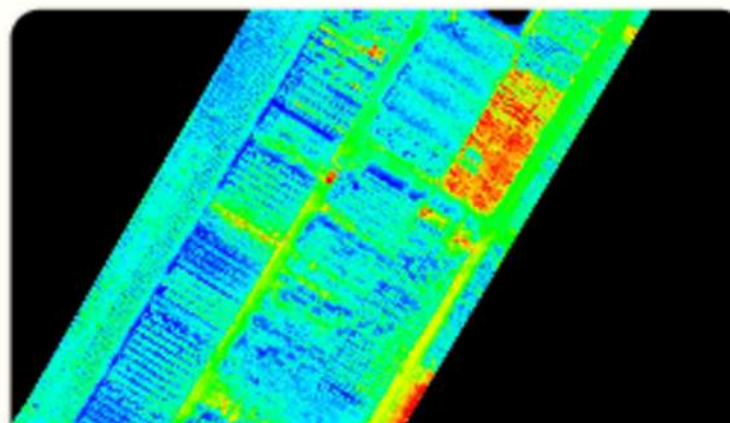


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Prima sede - Milano

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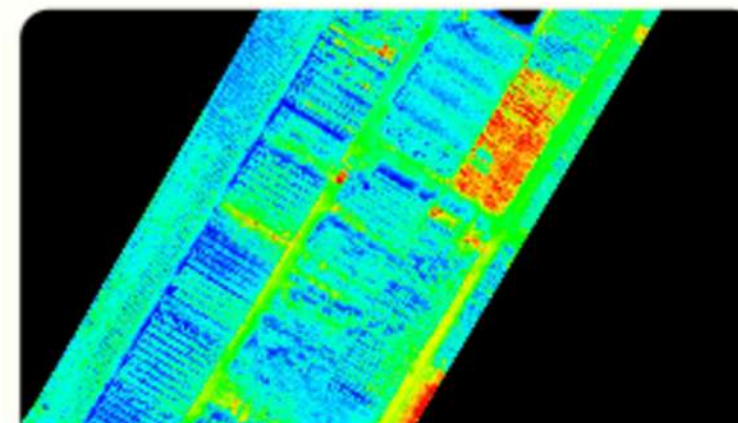
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Prima sede - Milano

Settore A00

1.42 MB 2789 × 2890

la seconda descrizione



10 ottobre 2025

Prima sede - Milano

Settore A00

1.42 MB 2789 × 2890

la descrizione

Nursy: modifiche dinamiche e automatiche **senza interventi manuali**

Il vivaista ispeziona il vivaio e modifica i timer manualmente ogni giorno



Ispezioni quotidiane

Continui aggiustamenti



Cicli fissi, modificati a mano

Nessuna risposta a meteo o suolo



Sprechi e sovra-irrigazione

Qualità pianta non uniforme

Nursy modifica i cicli in autonomia, adattandosi a meteo, suolo e pianta



Cicli aggiornati senza intervento

$ET_0 + K_c$ dinamico + sensori dielettrici



Adattamento ad ogni condizione

Meteo · substrato · specie vegetale



Qualità uniforme della pianta

Scarti ridotti del 50%



Piena **integrazione** con i sistemi esistenti

NESSUNA MODIFICA AL TUO IMPIANTO

Nursy è un software **integrabile** con i sistemi di controllo dell'irrigazione e fertilizzazione esistenti.

