



# FarmAid™

The future  
of smart  
farming.



FARMAID

SUSTAINABILITY AND INNOVATION  
FOR SMART CROP PROTECTION

# The need for protection

In a context of global crises, growing food demand and extreme climate events, the **protection** of crops and food supply represents an economic, social and strategic necessity.



HAIL



STORM



FROST

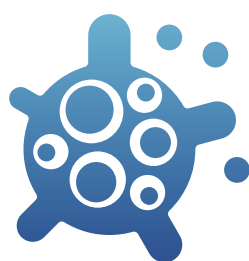


EXCESSIVE  
RADIATION

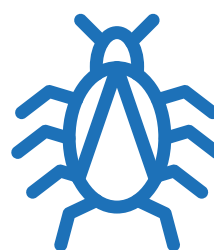


DROUGHT

Adverse **weather events** such as hail, heavy rain, spring frost, heat waves and drought can compromise an entire harvest, sometimes causing irreparable damage to plants, with a lasting impact for the seasons to come.



FUNGI



PARASITES

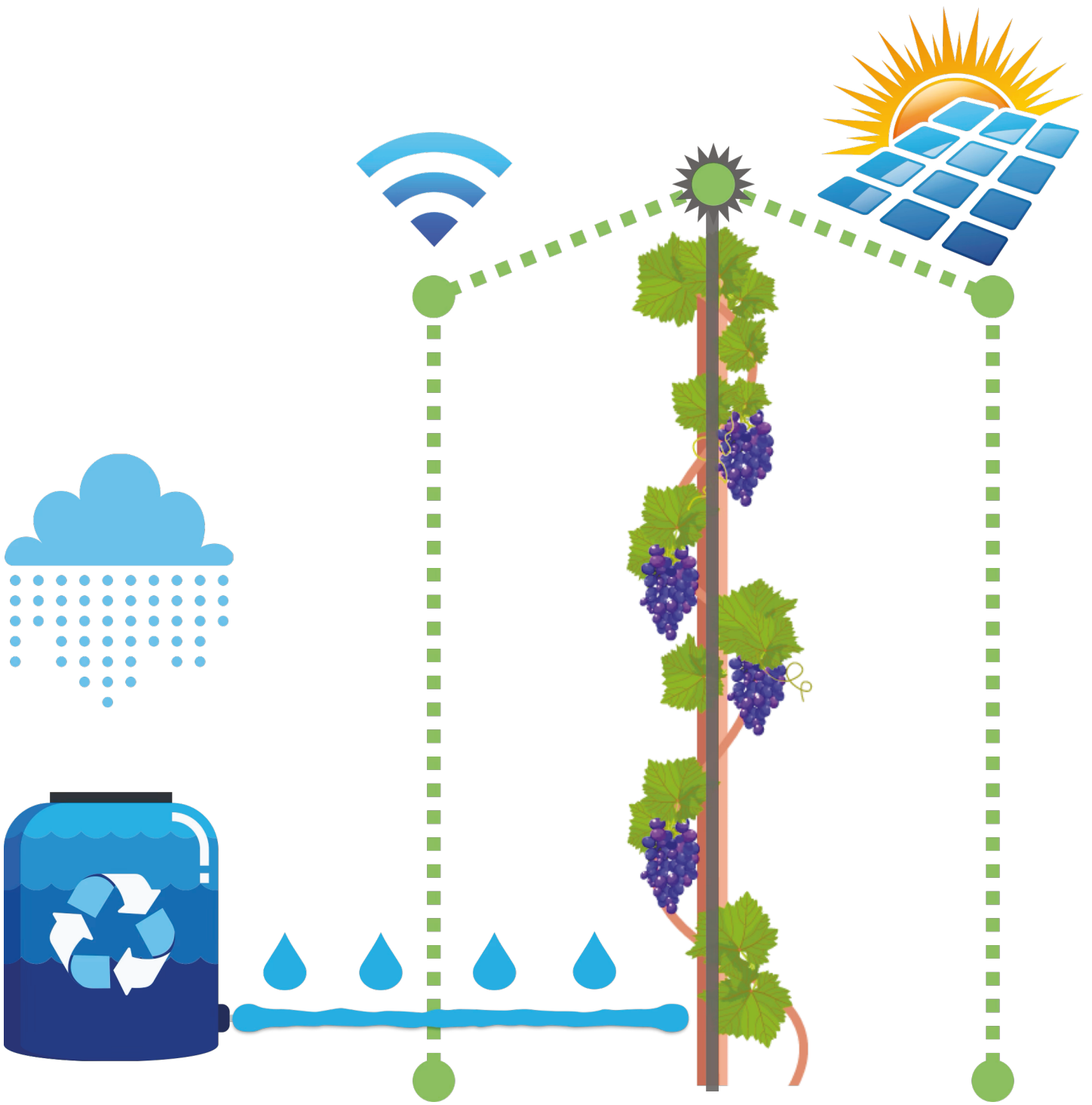
**Fungal diseases** and **parasites** add to the vulnerability of crops, resulting in an intensive use of phytosanitary chemicals.

# FarmAid™

FarmAid™ is a patented IoT modular device for protecting crops, which can deploy a protective net or other cover in seconds.

In particular, FarmAid™:

- ✓ replaces traditional **anti-hail** nets, eliminating the related labor cost of installation and removal (in several countries, including Switzerland, the permanent installation of nets is prohibited by animal protection regulations);
- ✓ breaks and diffuses water drops or insulates the plant (depending on the cover type) when **heavy rain** occurs, preventing damage to fruits, foliage and stems;
- ✓ protects the developing plant from **frost** in spring;
- ✓ provides the plant with partial or total **shading** (depending on the cover type) during the hottest hours on summer days;
- ✓ protects the plant from humidity, preventing the proliferation of **mildew** and **mold**, during periods of frequent rainfall;
- ✓ protects crops from **pests**;
- ✓ favors **organic farming** by reducing the use of phytosanitary chemicals; and
- ✓ operates **autonomously** based on data provided by meteorological stations and on-field sensors, or as instructed by the farmer via the dedicated app.



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5TH PRIZE

2024 FONDAZIONE AGIRE  
SPECIAL AWARD



FarmAid™ offers several additional features and accessories:

- + **Photovoltaic production** to power the farm and sell excess energy (so-called agrivoltaics) through the integration of solar panels into the device's supporting structure.
- + **Rainwater** collection and **drip irrigation** system to counteract periods of drought.
- + **Scarecrow** function (opening and closing at programmed intervals or upon motion detection).

In future, FarmAid™ can constitute the **basic infrastructure** for most activities of crop care and exploitation (fertilization, aerial watering, heating, harvesting and so on) and sensor monitoring (movement, theft, plant growth, environmental conditions), currently in R&D, allowing farmers to enjoy all the benefits of **automation**, including the neutralization of the growing shortage of agricultural labor.



# Prototype



## Experimental data\*

### HAIL

In the sites affected by hailstones with a diameter of up to 4 cm, the covering guaranteed a degree of protection from 94 to 99.5%, compared to damage in the adjacent uncovered rows equal to up to approx. 40% of the grapes.

### FROST

In the sites affected by spring frost (between 0 and  $-3^{\circ}\text{C}$ ), in the months of April and May, the covering effectively protected nearly all buds.

### FUNGAL DISEASES

Integrated with the sole use of biological fungicides, the covering guaranteed 100% of the harvest, with results equal to or better than traditional treatments.

\*Data collected from experiments on vine protection using plastic coverings.



FARMAID

SMART PLANT PROTECTION