AGRIMEDIC GLOBAL · PLANTOS VERDE®

When the Flood Recedes, Which Crops Are Still Standing?

5

Mechanisms of Flood Recovery

How Plantos Verde® stabilises plant metabolism during waterlogging — and why treated crops recover when untreated crops do not.

Agrimedic GLOBAL

plantosverde® TRULY EFFICIENT

THE CHALLENGE

Flooding Is Agriculture's Most Unforgiving Acute Stress

Within 24–48 hours of waterlogging, oxygen deprivation triggers a cascade of internal failures that most crops cannot reverse on their own.

The question is not simply whether a field drains. The question is **what happens inside the plant while it is still underwater** — and whether those systems can be stabilised before the damage becomes irreversible.

Plantos Verde® was not designed specifically for flood events. It was designed to support fundamental plant physiology. In flood-stress scenarios, that makes all the difference.

1

Metabolic Stabilisation

Preventing the first collapse

THE CHALLENGE

When roots are submerged, oxygen deprivation shuts down aerobic respiration — the primary engine of ATP production. Without ATP, cells cannot maintain basic functions.

MECHANISM

CaO	Stabilises cell membrane integrity, preventing rupture under osmotic stress and low-oxygen conditions.
SiO_2	Maintains chloroplast function and delays photosynthesis shutdown — preserving energy production capacity.
Mg	Supports chlorophyll structure and ATP-linked energy transfer across the electron transport chain.

RESULT: The plant does not enter irreversible metabolic collapse. Internal energy reserves remain partially active long enough for the recovery process to begin.

2

Rapid Detoxification

Clearing the internal damage

THE CHALLENGE

Flooded roots accumulate ethanol, lactic acid, and sulphide compounds. Left unchecked, these byproducts destroy cell walls and create the conditions for root rot.

MECHANISM

Enzymatic	PV® increases enzymatic activity, accelerating the breakdown of anaerobic metabolic waste products.
Structural	Protein synthesis is supported, restoring structural components damaged by toxic accumulation.
Ionic	Ionic balance in root cells is reestablished, allowing normal cellular function to resume.

RESULT: Root rot is arrested. New white root formation — the clearest sign of genuine recovery — becomes possible within a measurably shorter window.

3

Restarting Sap Flow

Reconnecting the vascular system

THE CHALLENGE

After prolonged waterlogging, xylem and phloem lose the pressure differentials needed to move water and sugars. The plant may be structurally intact but functionally stalled.

MECHANISM

Xylem	PV® increases xylem pressure, restoring upward water movement from root to canopy.
Phloem	Phloem mobility is stimulated, allowing sugars to reach actively growing points.
Turgor	Turgor is restored in leaf cells, enabling stomata to function and photosynthesis to re-engage.

RESULT: PV®-treated crops visibly 'wake up' faster after waterlogging — not because the stress was less severe, but because the internal transport network was kept viable.

4

Rebuilding Root Biomass

The single most important survival factor

THE CHALLENGE

Developer documentation and field observations confirm PV® drives a significant increase in root biomass. In a post-flood environment, this is the defining variable between crops that recover and those that decline.

MECHANISM

Oxygen	Greater root volume increases oxygen uptake as soil aeration is restored post-flood.
Nutrients	Expanded root surface area accelerates nutrient absorption during the critical recovery window.
Disease	Denser root systems reduce susceptibility to secondary pathogen pressure and soil-borne disease.

RESULT: PV® reboots the root architecture — creating the biological foundation for full season recovery rather than partial yield salvage.

5

Microbial Reactivation

Restoring the soil environment

THE CHALLENGE

Post-flood soils are biologically compromised. Extended anaerobic conditions eliminate aerobic microbial populations responsible for nutrient cycling and soil structural integrity.

MECHANISM

Microbes	PV® residues reaching the soil surface provide substrate for beneficial aerobic microbial communities.
Humus	Humus formation resumes, gradually rebuilding soil structure and water retention properties.
Toxins	Anaerobic toxic residues — sulphides, organic acids — are broken down through enhanced microbial activity.

RESULT: The soil environment recovers in parallel with the plant — not weeks behind it. This synchronised recovery is essential for sustained late-season growth.

THE CORE DIFFERENTIATOR

Most crop inputs work in the soil.

Floods destroy the soil first.

Plantos Verde® works inside the plant — bypassing the damaged soil environment entirely.

BOARD-READY SUMMARY

What Plantos Verde® Does During a Flood Event

- Maintains ATP production under low-oxygen conditions
- Stabilises cell membranes and chloroplast function
- Restarts sap flow and nutrient transport post-waterlogging
- Accelerates detoxification of anaerobic metabolic waste
- Drives rapid rebuilding of root biomass
- Reactivates beneficial soil biology after waterlogging

COMMERCIAL OUTCOME: Crops treated with Plantos Verde® survive, recover, and return to productive growth after flood events — rather than declining into irreversible loss once the water recedes. For high-value crops in flood-risk regions, this represents a measurable and defensible return on investment.

IN A FLOOD EVENT, TIME IS THE ONLY CURRENCY THAT MATTERS.

PV® buys the plant time to detoxify, restart its vascular system, rebuild roots, and allow the soil to recover alongside it.

ATP	Roots	Soil	Crops
Maintained	Rebuilt	Reactivated	Recovered

Let's scale what works.

Plantos Verde® delivers measurable, repeatable results.

The data is clear — time to commit to scale.

Regenerative Farming

Climate-Smart Production

Higher Yields · Lower Impact

Stronger Farmer Livelihoods

Every producer in the world now has access to a technology that delivers more from every hectare, while building the sustainable future the sector demands.

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