FARMER FREEMAN

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Pathogen Diagnostic Report

HLVd

CUSTOMER NAME
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COMPANY / ORGANIZATION
Farmer Freeman

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REPORT DATE
October 15, 2026

RUN DATE
October 15, 2026

DATE OF LAB RECEIPT
October 14, 2026

Diagnostic Results

Sample ID	Strain	Nickname	Sample Type	HLVd	IC
VT00001	Blue Dream	BD-A01	Root	DETECTED 22.40	N/A 24.10
VT00002	Wedding Cake	WC-B02	Root	NOT DETECTED	PASS 25.30
VT00003	Gelato 41	G41-C03	Root	DETECTED 27.10	N/A 24.70
VT00004	OG Kush	OGK-D04	Root	NOT DETECTED	PASS 23.90
VT00005	Purple Punch	PP-E05	Root	NOT DETECTED	PASS 24.50

- DETECTED — Pathogen present; IC not required for detection
- NOT DETECTED — No pathogen signal; IC valid
- UNDER ANALYSIS — IC failed; being retested, ready in 1–2 business days
- Lower Cq values typically correlate with a greater pathogen load in the sample.

Interpretation Summary

Pathogen Detected

One or more samples tested positive for: **HLVd**. Immediate action is recommended. Isolate affected plants and equipment. Do not take cuttings from positive plants. Sanitize tools between plants. Contact a cultivation advisor to develop a remediation plan.

About the Pathogens Tested

Hop Latent Viroid (HLVd)

Channel: FAM **Type:** Viroid **Threshold:** Cq < 35

Hop Latent Viroid (HLVd) is the most economically damaging pathogen in cannabis cultivation, causing 'dudding disease.' Infected plants exhibit stunted growth, reduced trichome density, and significantly lower cannabinoid yields. HLVd spreads through contaminated cutting tools, clones, and plant-to-plant contact.

Methodology

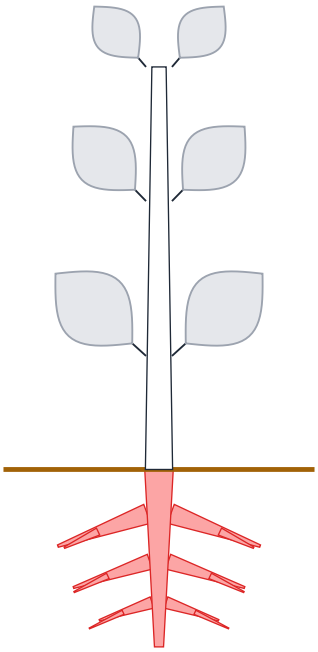
This report utilizes quantitative reverse transcription PCR (RT-qPCR) performed on an Agilent AriaMX Real-Time PCR instrument. Nucleic acids are extracted from plant tissue using a validated extraction protocol. Each reaction includes an internal extraction and amplification control (IC/HEX channel) to confirm assay validity. A Cq threshold of 35 cycles is applied for most targets (40 cycles for Russet Mite): samples with Cq at or below threshold are reported as Detected. Samples with Cq between 35 and 40 cycles are also reported as Detected when the IC Cq is below 35, confirming assay validity. A positive target result is reported as Detected regardless of IC status. Wells with no target signal and a failed IC are reported as Under Analysis and will be retested by the laboratory.

Questions? Contact support@farmerfreeman.com or call 202-697-7640. Submit new samples at www.farmerfreeman.com.

VT00001

Blue Dream

BD-A01



No pathogen detected
Pathogen detected
Not tested

PANEL
HLVd

SAMPLE TYPE
Root

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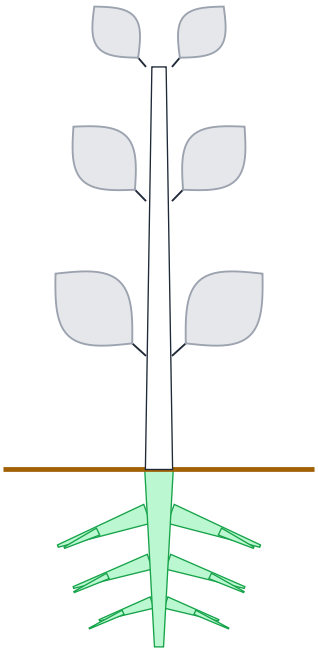
Results

HLVd	**DETECTED**	Cq 22.40
Internal Control (IC)	**PASS**	Cq 24.10

VT00002

Wedding Cake

WC-B02



No pathogen detected
Pathogen detected
Not tested

PANEL
HLVd

SAMPLE TYPE
Root

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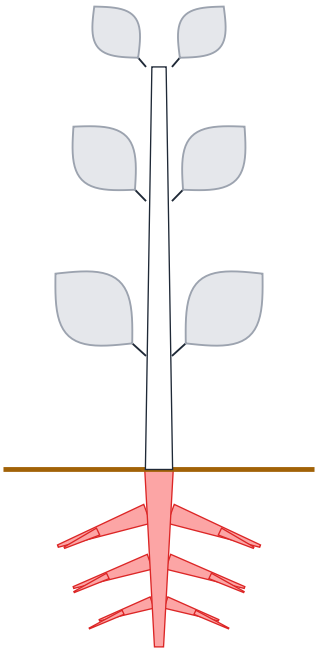
RUN DATE
October 15, 2026

Results

HLVd	**NOT DETECTED**	No Cq
Internal Control (IC)	**PASS**	Cq 25.30

VT00003

Gelato 41
G41-C03



No pathogen detected
Pathogen detected
Not tested

PANEL
HLVd

SAMPLE TYPE
Root

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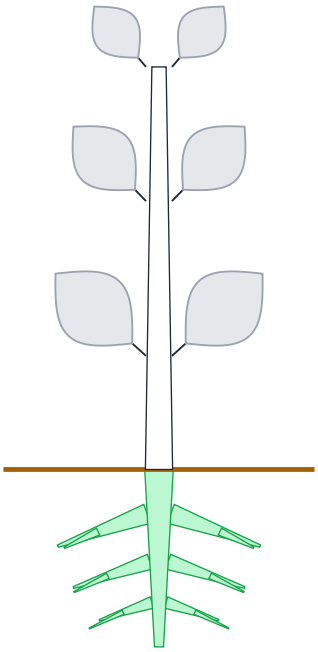
Results

HLVd	**DETECTED**	Cq 27.10
Internal Control (IC)	**PASS**	Cq 24.70

VT00004

OG Kush

OGK-D04



No pathogen detected
Pathogen detected
Not tested

PANEL
HLVd

SAMPLE TYPE
Root

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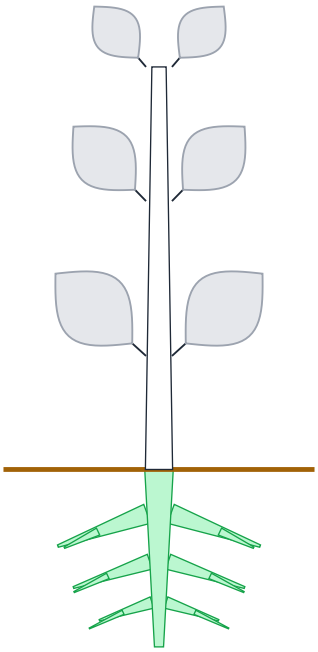
Results

HLVd	**NOT DETECTED**	No Cq
Internal Control (IC)	**PASS**	Cq 23.90

VT00005

Purple Punch

PP-E05



No pathogen detected
Pathogen detected
Not tested

PANEL
HLVd

SAMPLE TYPE
Root

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Results

HLVd	**NOT DETECTED**	No Cq
Internal Control (IC)	**PASS**	Cq 24.50