



2023

State of Weather Challenges for Vegetable Farmers



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Purpose & Methodology

WHAT IS THIS DOCUMENT?

This is a special deep dive into AEM's 2023 State of Agricultural Weather Challenges Report with insights tailored to vegetable farmers.

WE'LL EXPLORE...

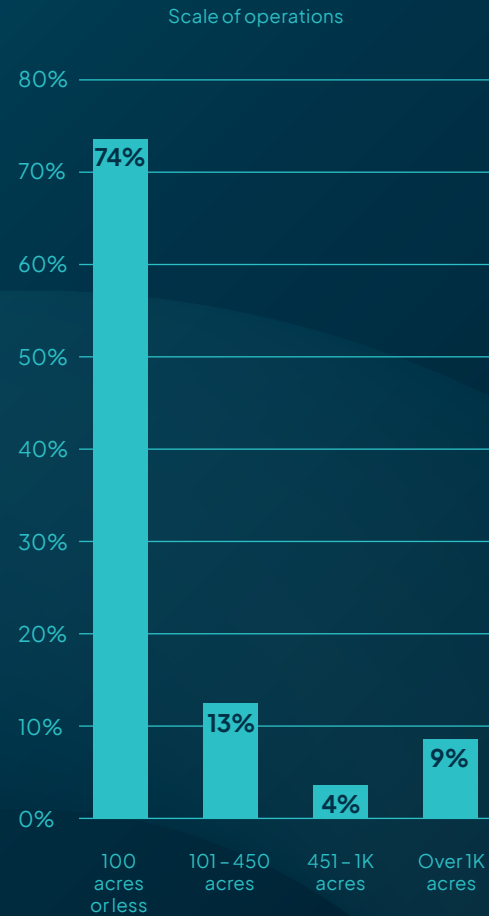
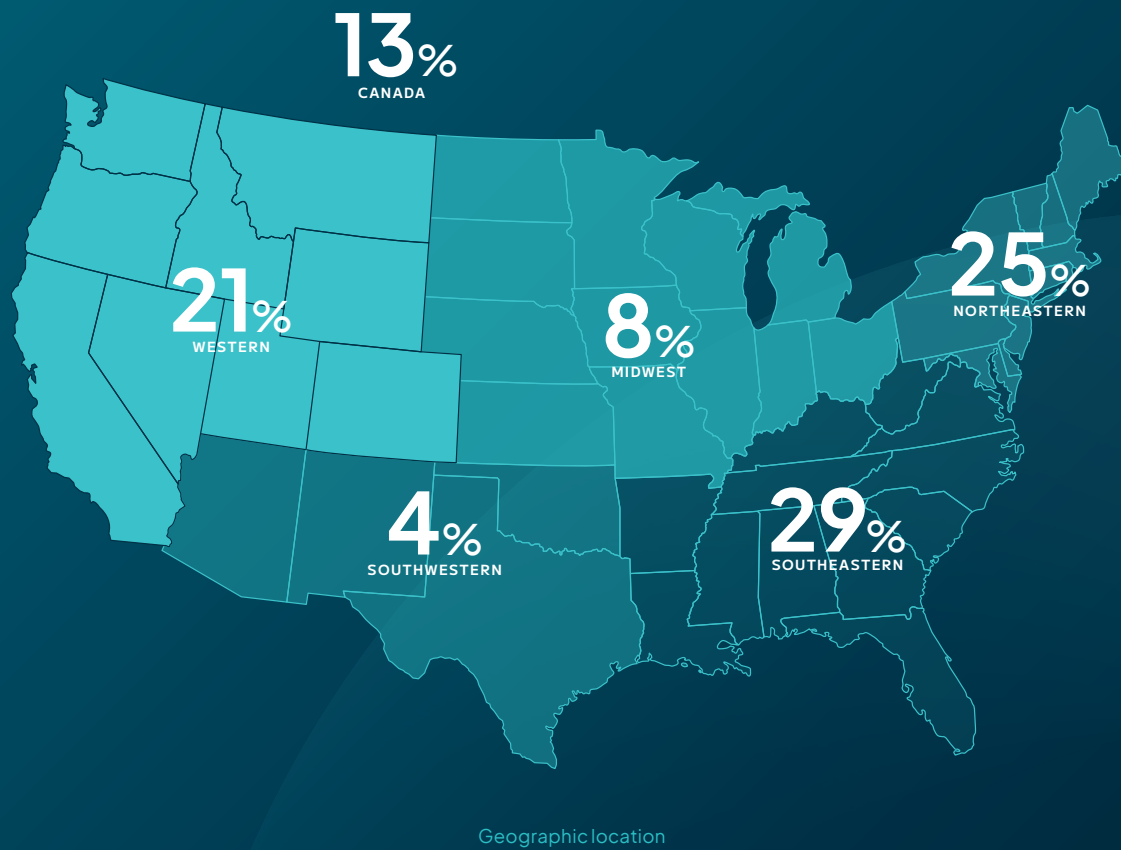
- How weather ranks among current agricultural challenges
- How weather is currently impacting business and operations for vegetable farmers across North America
- How vegetable farmers currently access and use weather intelligence
- Opportunities for better weather technology utilization across agriculture

HOW WE CREATED OUR REPORT:

- Invited our friends, colleagues, customers, and contacts in the agriculture business to complete a fifteen-question survey
- Collected data from more than 120 individual respondents and winnowed that down to a core group of 105 active farmers and growers in North America
- Reviewed the data with our team of agriculture specialists and mined for deeper insights



Meet our vegetable farmers: Who are they?



Weather as a Leading Agricultural Challenge

Top current challenges, as identified by vegetable farmers:

	Weather & Climate Challenges	Labor Cost/ Availability	Fertilizer & Seed Cost/ Availability	Pest & Fungus Mitigation	Regulatory Compliance	Worker Safety
Biggest Challenge	38%	21%	13%	25%	0%	4%
#2 Challenge	33%	17%	21%	29%	0%	0%
#3 Challenge	13%	8%	54%	13%	0%	13%
#4 Challenge	4%	25%	4%	29%	8%	29%
#5 Challenge	12%	25%	4%	0%	29%	29%
#6 Challenge	0%	4%	4%	4%	63%	25%

84%

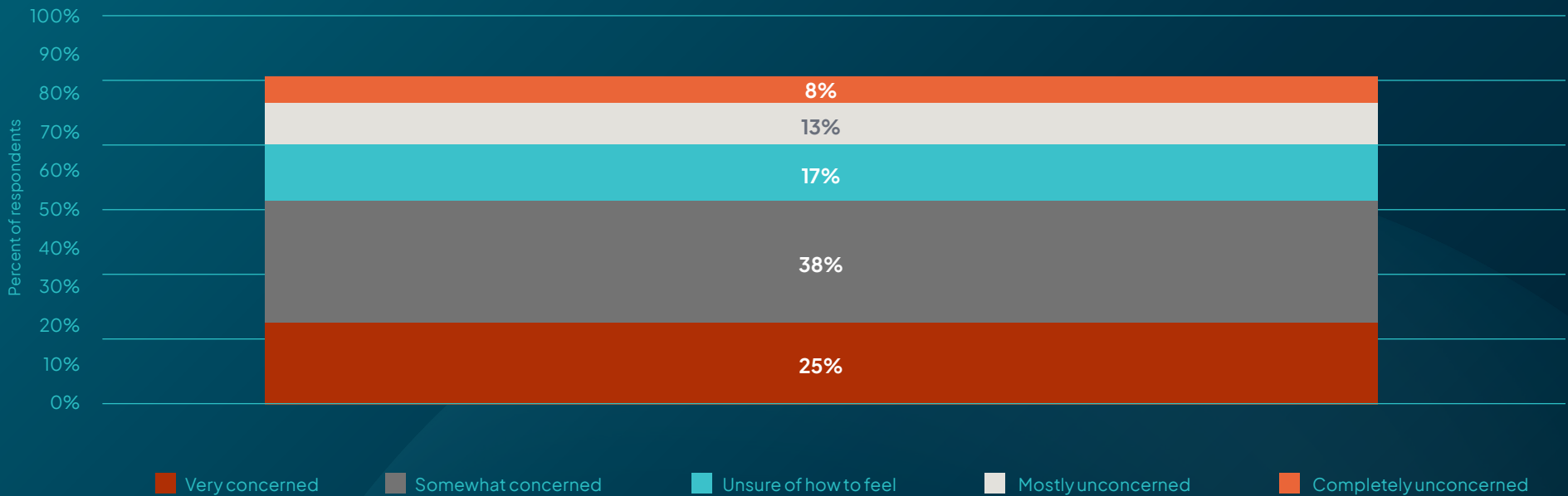
of veggie growers now consider the weather a top 3 challenge

71% say top 2!

Pest and fungus mitigation, which are growing and evolving alongside worsening weather challenges, emerged as a strong contender for #2

Weather Challenges

How concerned are veggie growers about the effects of climate change?



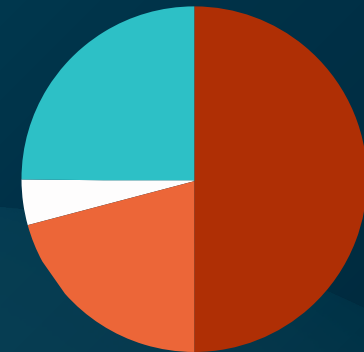
63% of vegetable farmers are concerned about the possible impacts of climate change, compared 76% of their fruit-growing peers.

Weather Challenges

How does severe weather translate to financial loss?

Here's our vegetable growers' scorecard:

	Reduced Yields/Crop Loss	Damage to Equipment or Facilities	Lost Workdays	Worker Safety	Increased Pests or Fungi
Biggest/Worst financial impact	62%	4%	4%	0%	29%
Second biggest financial impact	21%	8%	13%	13%	46%
Third biggest financial impact	13%	25%	12%	33%	17%
Fourth biggest financial impact	4%	13%	50%	29%	4%
Fifth biggest financial impact	0%	50%	21%	25%	4%



■ Less than \$1K
 ■ \$1K - \$5K
■ \$5K - \$10K
 ■ \$10K+

Every single veggie farmer with less than \$1,000 in losses farms less than 100 acres. 67% of growers with at least 100 acres reported more than \$10k in weather-related losses.

Weather Challenges

What's affecting North America's veggie growers?



71%

are affected by drought



58%

are impacted by increasing high temperatures



42%

are impacted by frost and freezing



25%

are impacted by increased winds

What's your single biggest weather challenge?



42%
Drought



33%
High Temperatures



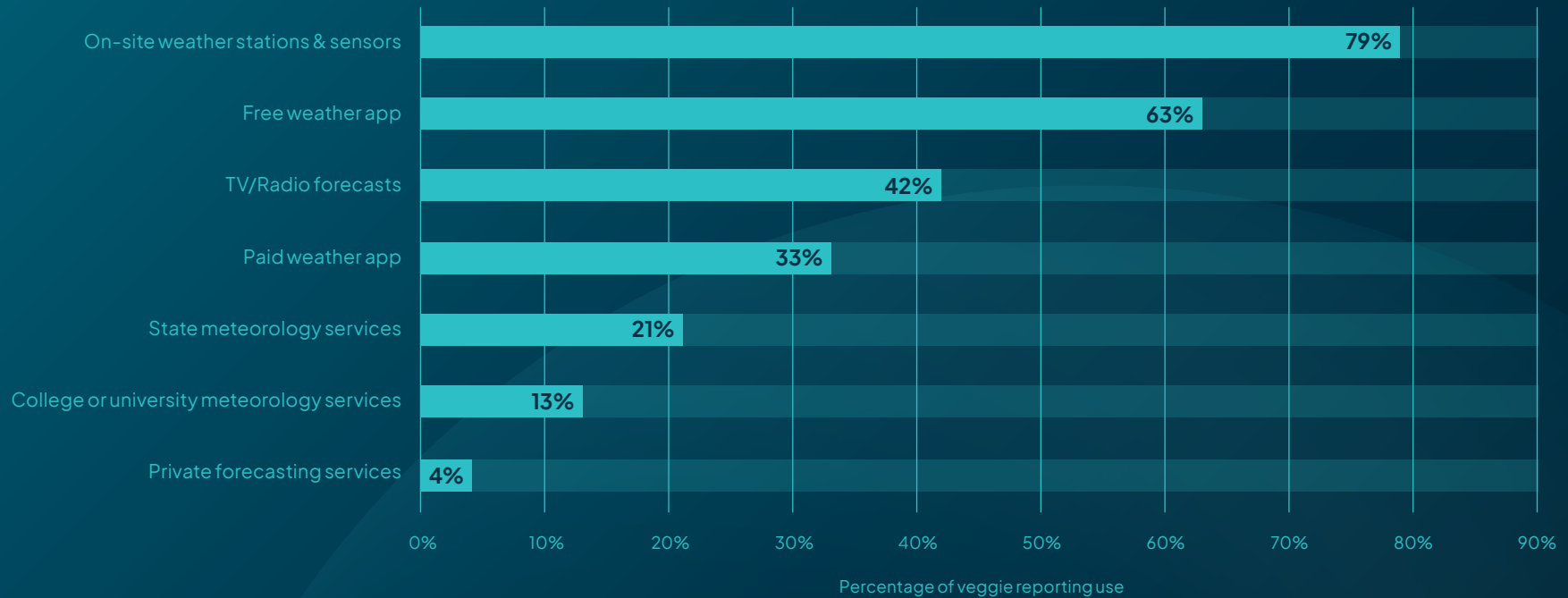
21%
Frost & Freezing



4%
Flood

Current State of Weather Monitoring & Forecasting in Agriculture

How are farmers monitoring and forecasting weather?



Free services are great for general information, but almost 80% of the data pool agrees on-site devices are essential to get a more specific picture!



Current State

How are vegetable farmers getting their hyperlocal environmental data?

83%

own and manage their own weather stations & monitoring sensors

21%

leverage data from a public mesonet

13%

do not use environmental monitoring data at all

If you're part of the nearly one-in-five farmers who don't have a local monitoring strategy, could purchasing devices or contacting your local mesonet operator be an inexpensive path toward a better way?

Current State

What are vegetable farmers doing with weather data?

What percentage of survey respondents use weather data from local stations and sensors to...



83%

Monitor real-time conditions



38%

Optimize irrigation



46%

Forecast frost or calculate chill



25%

Calculate growing degree days



21%

Inform pest management



13%

Optimize fertilization

Our research indicates that vegetable farmers are much more likely than the average North American grower to use their on-site weather stations to calculate frost and chill. That was actually a surprise, since veggie growers don't often leave plants in the ground throughout the winter. If you look at fertilizer prices and pest management as growing global challenges, the community needs to use sensor data better.



Findings, Recommendations, & the Path Forward

High-level summary



CORE FINDINGS & INSIGHTS:

71% of surveyed vegetable growers report weather as either their #1 or #2 overall challenge. Pest and fungi mitigation.

Approximately **80%** of vegetable farmers currently have an on-site weather/environmental monitoring solution in place. That's 10% higher usage than agriculture industry as a whole, based on our research.

- There are still opportunities for veggie growers to get even more value out of their weather stations and environmental sensors

Nearly **13%** of growers are **not** utilizing environmental monitoring data at all, even in the face of increasing weather challenges.



LEARN MORE:

To see how vegetable growers stack up against their colleagues in the worlds of fruit, nuts, grapes, and the wonderful world of row crops, download the full [2023 State of Agricultural Weather Challenges](#) from AEM.

Davis Instruments, an AEM brand, manufactures weather stations and EnviroMonitor®, a farm sensor platform. You can use your weather data and third-party sensors to measure soil moisture, track chill hours/GDDs, create frost alarms and more.

[Click here](#) for a free consultation.



For more information, let's talk at:
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