Illinois Green Industry

2022 Weather Survey Results & Summary

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SGN TREES

"We grow healthy trees, deep roots, and strong communities."

- Spring Grove Nursery Core Purpose

SGN TREES

SpringGroveNursery INC.
20 YEARS & GROWING

Founded in 1925, Illinois Green Industry Association (IGIA) is one of the oldest agricultural organizations in the state.

GREEN INDUSTRY STATS

- Nursery and greenhouse growers that produce trees, shrubs, annuals, and perennials (46%)
- Residential, commercial, and municipal landscape design, installation, and maintenance firms (37%)
- Garden centers and greenhouses (23%)
- Irrigation contractors (10%)

Illinois is ranked 5th in the Country for Green Industry Output at $13.8 billion[1]

Over 87,000 jobs in the green industry in Illinois[2]

GREEN INDUSTRY TRENDS

- Rise in new gardeners
- Planting for the future
- Supply chain issues
- Labor shortages & rising input costs
- Climate change & extreme weather events

Wasco Nursery & Garden Center

HOW DOES CLIMATE AND WEATHER AFFECT OPERATIONS?

Production

- Plant & harvest timing
- Pesticide application timing - Grower Degree Days[3]
- Freeze/frost protection
- Day to day operations
- Growing time to market (5-10 yrs for trees)
- Losses - polar vortex, frost cracks, hardy rootstock
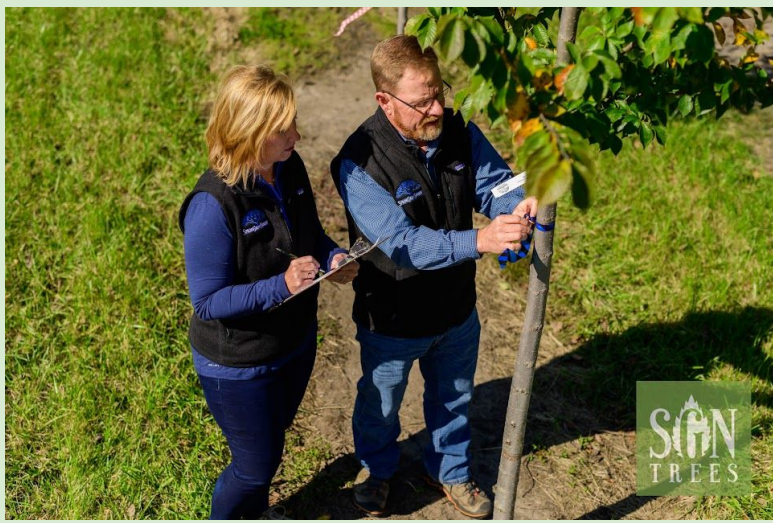- Weather in Oregon

iTrees.com

Wasco Nursery & Garden Center

Sales

- Spring sales driven by good/bad weather
- Plant hardiness zones
- Production meeting demand
- Planting for climate change
    - Chicago Region Trees Initiative (CRTI)

Forecasting

- Uses production & sales data
- Slim margins - Labor is tight
- Essential to mitigate risks
- *How do growers plan for the unexpected & unpredictable?*
- Always room to learn and grow

INDUSTRY SURVEY OVERVIEW

Sent a nine question weather data survey to nurseries and growers across the IGIA

Received 21 responses, including additional comments

What sources do you use to get your daily weather data? (check all that apply)

- Majority said Phone Apps (~75%)
  - Accuweather, 1Weather, WeatherBug, Weather Underground, Dark Sky
- Around half use a combination of TV, Internet, and Radio
  - The Weather Channel, Local News, and the National Oceanic and Atmospheric Administration (NOAA), Weather.gov
- No one used Meteorological Assimilation Data Ingest System (MADIS)
- Additional sources:
  - Grower Degree Days
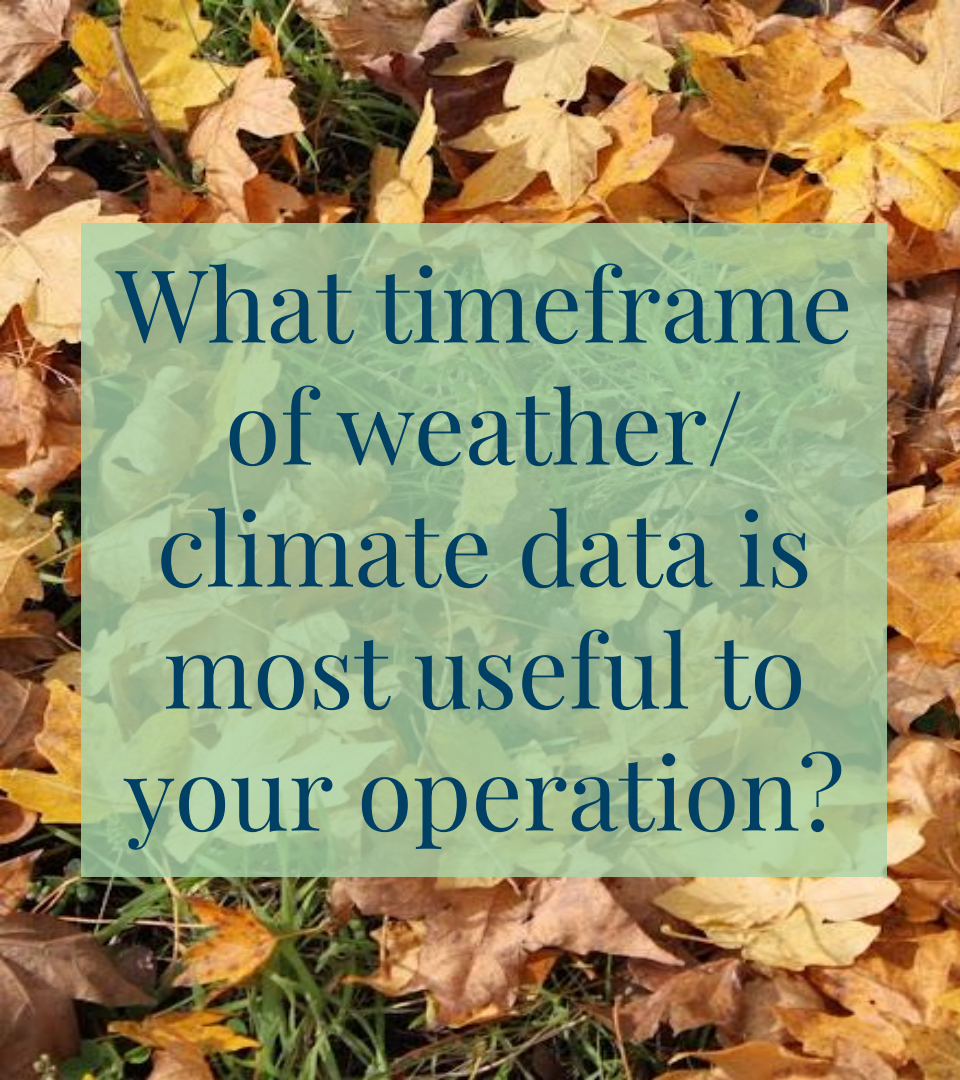 - Look outside
  - Rain gauge
  - Siri/Google Home

Do you use climate outlooks?

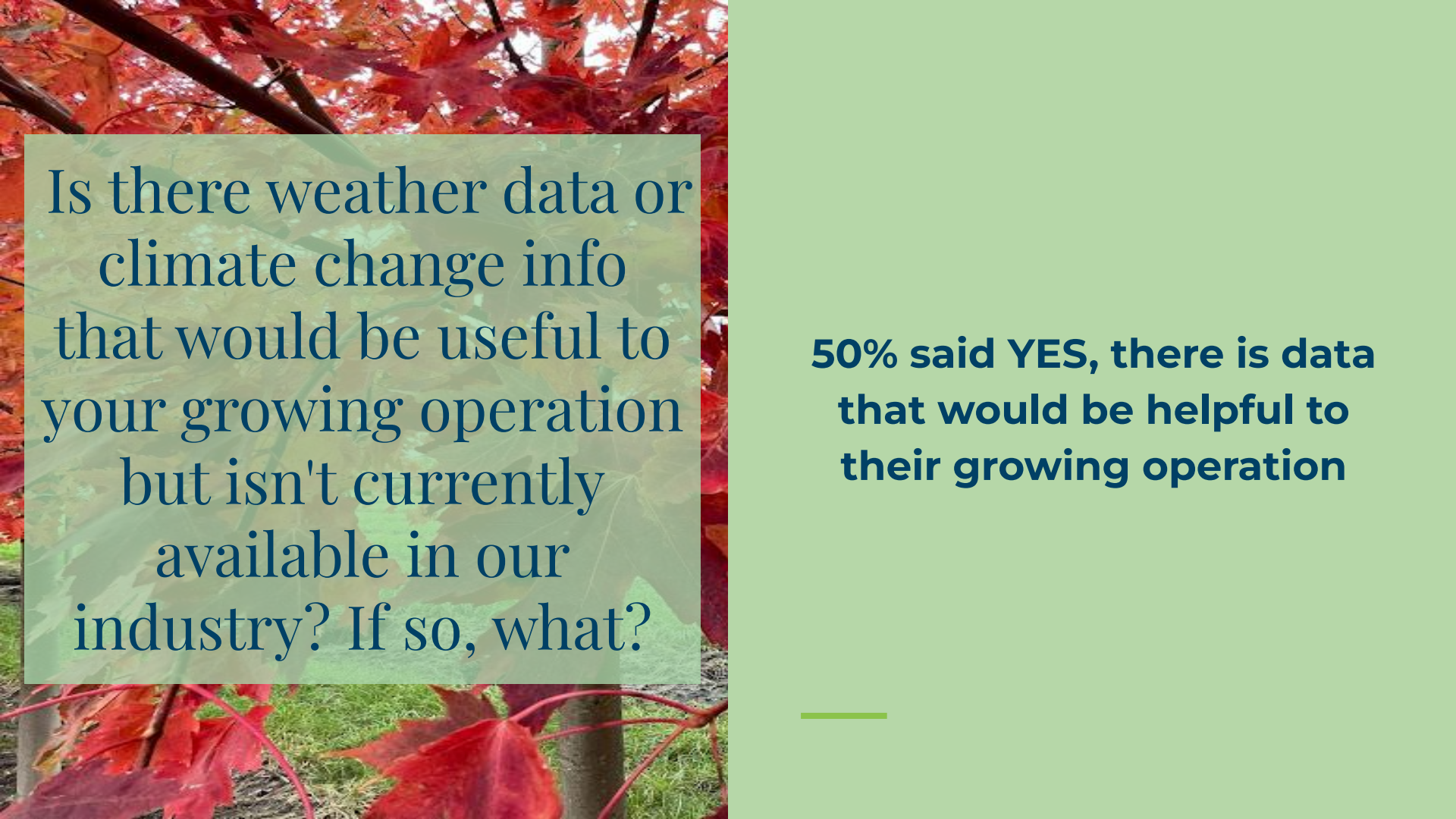**YES - 53%**

www.cpc.ncep.noaa.gov

NO - 47%

Inconsistent and unreliable

What timeframe of weather/ climate data is most useful to your operation?

Majority said 5-7 day forecasting models

Other respondents use the 2-week, 1 month, and 3 month outlooks in addition to the 5-7 day forecast

Is there weather data or climate change info that would be useful to your growing operation but isn't currently available in our industry? If so, what?

50% said YES, there is data that would be helpful to their growing operation

Useful Data and Info

- "Actual precipitation expectations with breakdown by the hour"
- "Finding the local Dew Points can be difficult based on apps. We use this in Spring and Fall to tell us what the chances of a frost are."
- "GGDs as pertains to ornamental pests, i.e. Pine Sawfly is coming soon because Spirea vanhouttei is blooming"
- "All of our weather forecasts are generated from urban areas, which do not always align with rural areas. This is especially tricky with the first frost/freeze of fall and last frost/freeze of spring."

Useful Data and Info Cont.

- "Seasonal rains and temperatures, generally anything out of normal ranges. Rain and heat for spring is the biggest concern."
- "Accurate long range forecast"
- "Anything related to changing patterns in terms of warm up in spring and cool down in fall. It seems like spring is cold and wet later into May which messes with our production timelines and plant ready dates. Fall seems to be more mild later into Nov/December, so does this change our outlook on safe planting times and how late we can install material? Or, are these last few seasons outliers?"

What aspects of climate change are most concerning to you, related to your growing operation?

- **Top Concerns?**
  - **Extreme temperature changes**
  - **Changes in rainfall patterns, drought/wet seasons**
- Other Concerns:
  - Unpredictability of the weather patterns
  - Increased severity of storms
  - Changing wind patterns
  - Changes to air/water quality
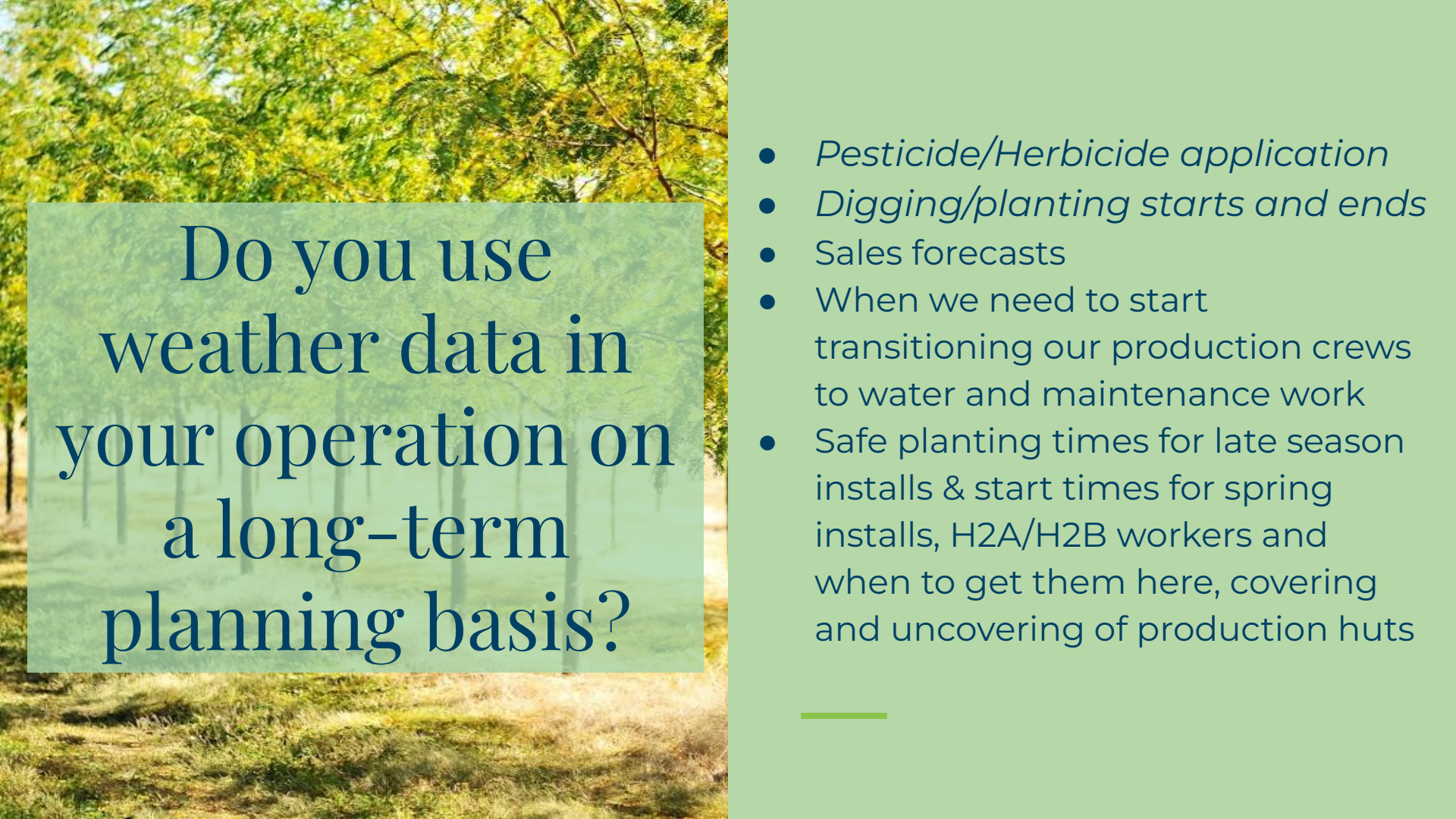
Additional Climate Change Comments

- "'False' springs and early wake up of crops followed by hard freezes."
- "Rainfall in patterns – we'll need to switch from our retention pond water to our well water. Intense storms don't allow us to capture as much water as lighter storms that occur in more frequent intervals. Not sure there's anything we can do to change this without significant capital expense, so should we plant on less frequent rainfall and more downpours/ intense/ intermittent storms instead?"
- "Extreme heat seems to be an interesting factor in our day-to-day operation. This is a concern for our employees working in the heat as well as moving trees in the extreme heat. It seems to have a great impact on trees after they are planted as well. I am very interested in keeping data on weather temperatures when we see loss after transplant."

Do you use weather data in your operation on a daily/weekly basis? If so, how?

- Planning irrigation and labor during heat/drought times
- To plan when to do certain things when the weather is more favorable, i.e. pruning evergreen trees when it is not too hot and humid
- Keep track of rainfall and soil conditions to work the fields and water our plants
- *Pesticide/Herbicide application*
- *Digging/planting starts and ends*

Do you use weather data in your operation on a long-term planning basis?

- *Pesticide/Herbicide application*
- *Digging/planting starts and ends*
- Sales forecasts
- When we need to start transitioning our production crews to water and maintenance work
- Safe planting times for late season installs & start times for spring installs, H2A/H2B workers and when to get them here, covering and uncovering of production huts

What devices do you use to access weather info? (Check all that apply)

Everyone said their SMARTPHONE

- Majority said Computer, Rain Gauge, and Personal Weather Station
- Around 25% of respondents said Television and Radio
- Others Responses
  - Standalone Weather Radio, Google Home, and Alexa

What elements of weather data are the most pertinent to your growing operation? (check all that apply)

Everyone said: RAIN!

- Majority also said
  - Temperature
  - Wind
  - Weather Forecast
  - Growing Degree Days
  - Humidity
- A few responded
  - Historical Data

- Other Comments:
  - "I wish there was more information on how to use Growing Degree Days"
  - "Sunlight/cloud cover totals/location"
  - "Rising temperatures, severe storms, wind, drought"
  - "We need apps with more accurate rainfall totals compared to previous seasons, apps which tell you what _actually_ happened over the last 2-3 days, so we can compare and adjust accordingly"

Key Takeaways: Where Do We Go From Here?

- Continue to share data and ideas across industries
- Education is important!
- Better incorporate climate data in business practices
- Support climate change mitigation efforts
- Partner together in research efforts

SOURCES

1) *Executive Summary of Economic Contributions of the Green Industries in the United States in 2018, Alan W. Hodges and Hayk Khachatryan, University of Florida; Charles R. Hall and Marco A. Palma, Texas A&M University; July 10, 2019*
2) *Ibid.*
3) *John Terhesh, Goodmark Nurseries https://www.goodmarknurseries.com/grower-degree-days-calculator/*

SGN Blog Post:
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