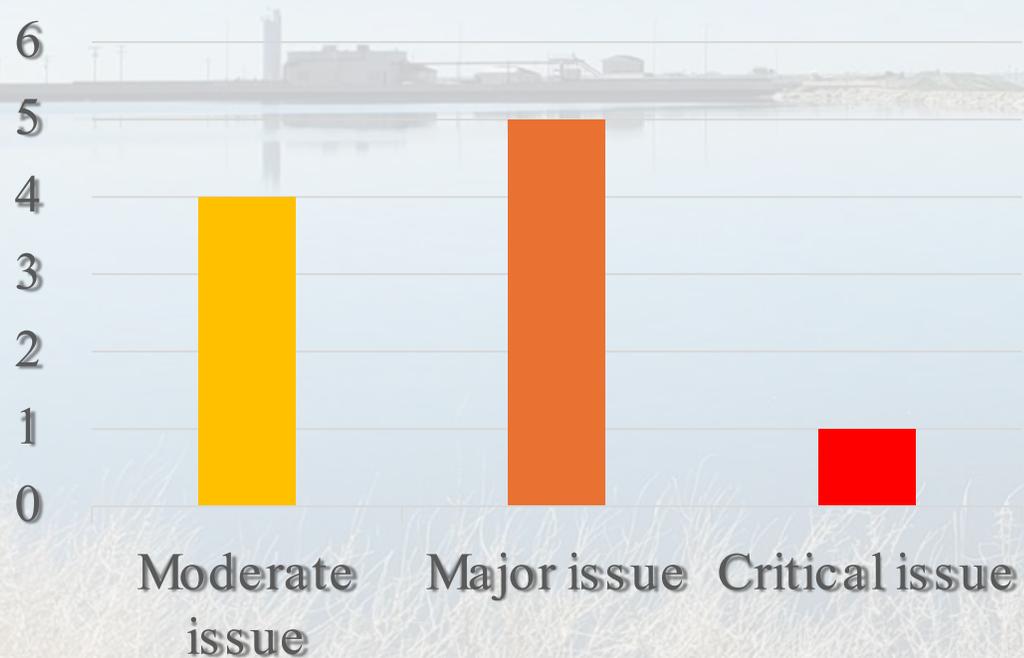


Pond Odor Control 101: Practical Solutions for Pond Odor Management in Sugar Beet Processing

How significant is odor as an issue at your facility?

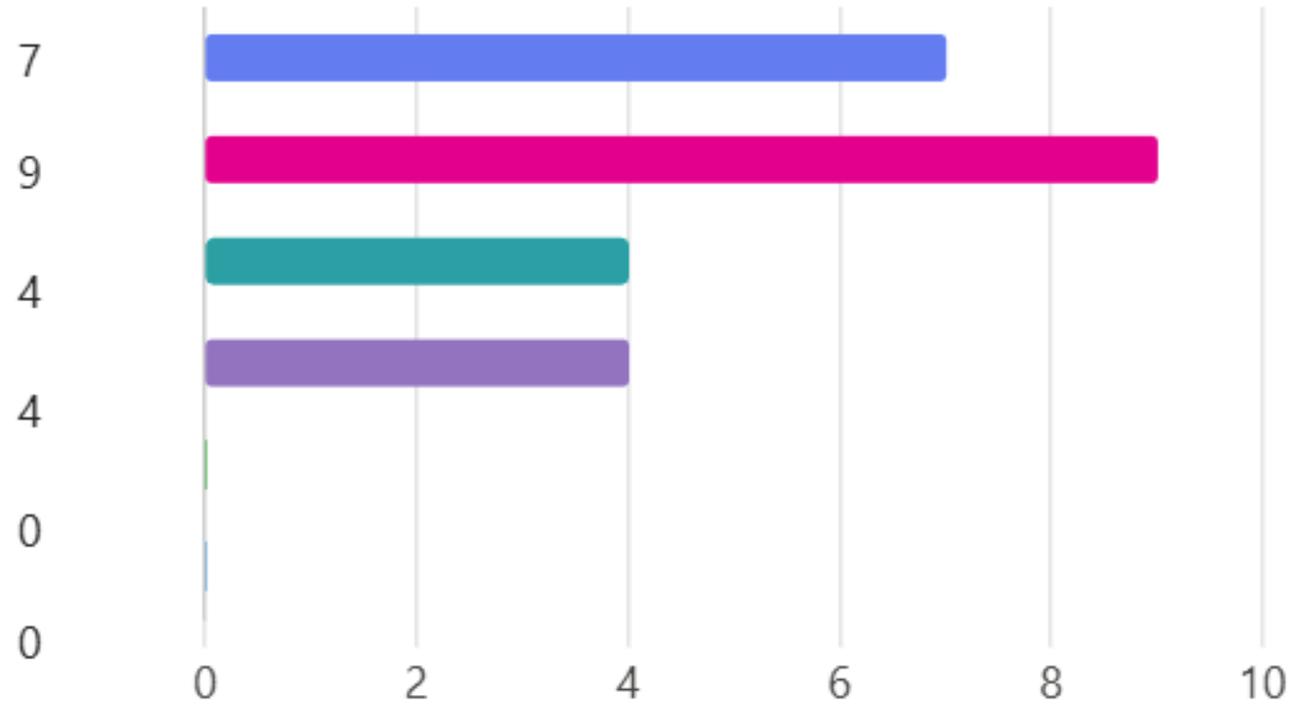


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7. Why does your facility care about odor control? *(Select all that apply)*

[More details](#)

- Regulatory compliance
- Reducing complaints from the community
- Maintaining a safe working environment
- Enhancing public or customer perception
- Process Improvements (please specify)
- Other



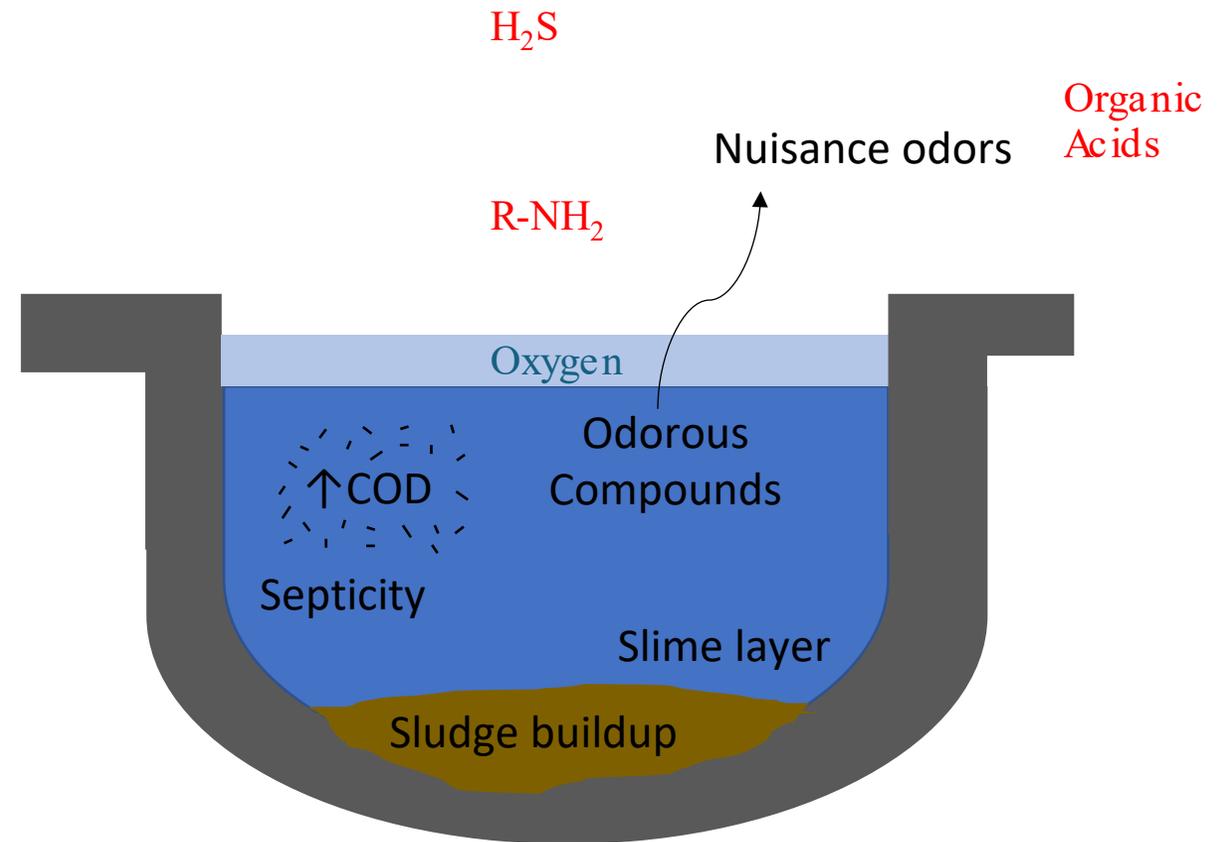
Significance of Pond Odor Control

- Odors negatively impact environmental quality and community relations.
- Regulatory compliance implications.
- Sugar beet processing presents unique odor challenges.
- Presentation will cover root causes, assessment tools, and control strategies.



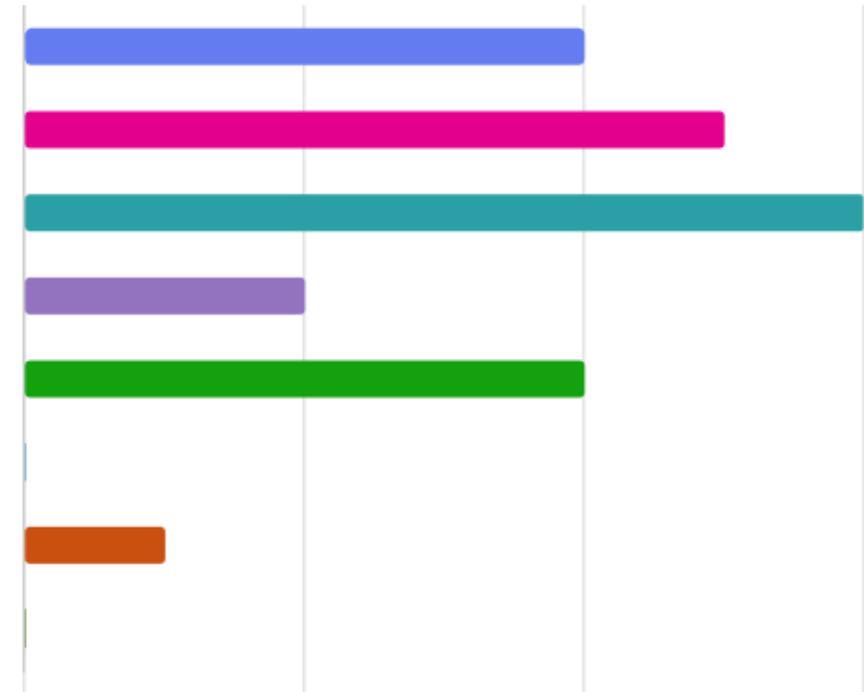
Sources and Causes of Pond Odors

- Seasonal* processing, with heavy water and solids imbalances
 - Storage often necessary
 - Upsets
1. Wastewater contains high loadings of biodegradable compounds
 2. Oxygen can become depleted
 3. Anaerobic conditions favor odorant production



4. **What are the primary sources of odors at your facility? (Select all that apply)**

● Holding/ retention ponds	4
● Process water ponds	5
● Mud/settling ponds	6
● Aerated ponds	2
● Flume loop	4
● Digester	0
● Piles	1
● Other	0



Assessing and Monitoring Pond Conditions



- Liquid phase
 - Dissolved oxygen & ORP
 - COD
 - pH
 - Temperature
 - Sulfide
- Vapor phase
 - H₂S
 - Dilution Thresholds
 - Wind speed and direction



5. Do you currently monitor odor levels or contributing factors?

- | | |
|---|---|
| ● Yes, we monitor hydrogen sulfide levels. | 5 |
| ● Yes, we monitor dissolved oxygen, pH, or temperature. | 8 |
| ● Yes, we use fence line or portable sniffing devices. | 4 |
| ● No, we do not actively monitor. | 1 |
| ● Other | 0 |

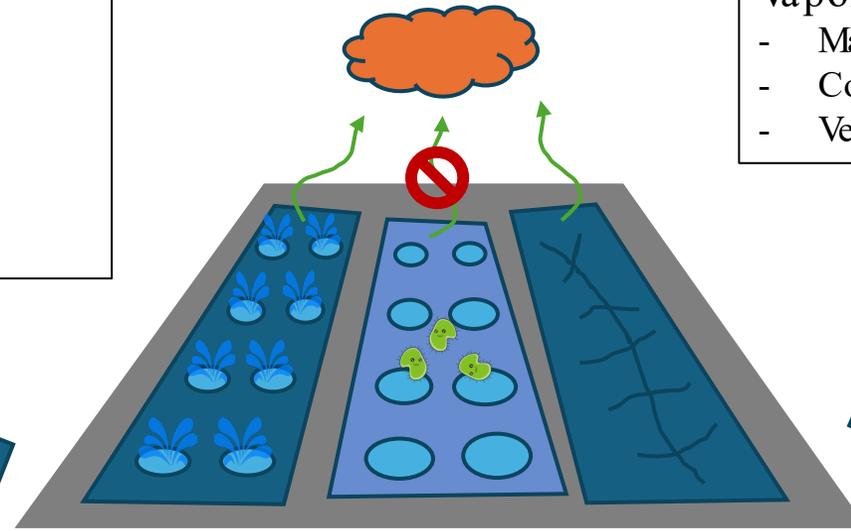
Strategies for Odor Control

Prevent volatilization

- Binding
- pH adjustment
 - Dependent on predominant odor
- Physical/mechanical
 - Strategic timing of aeration
 - Covers

Vapor phase treatment

- Masking
- Cover and treat
- Ventilation



Land application

Keeping sugar out of ponds!

- Monitoring
- Consistent practices in factory
- Remove odorous materials quickly

Correcting Septicity

- Supply more oxygen
 - Aeration
 - H₂O₂
 - Nitrates
- Managing concentrations of active biology
 - Recirculation
 - Targeted biocides

Manipulating the biology

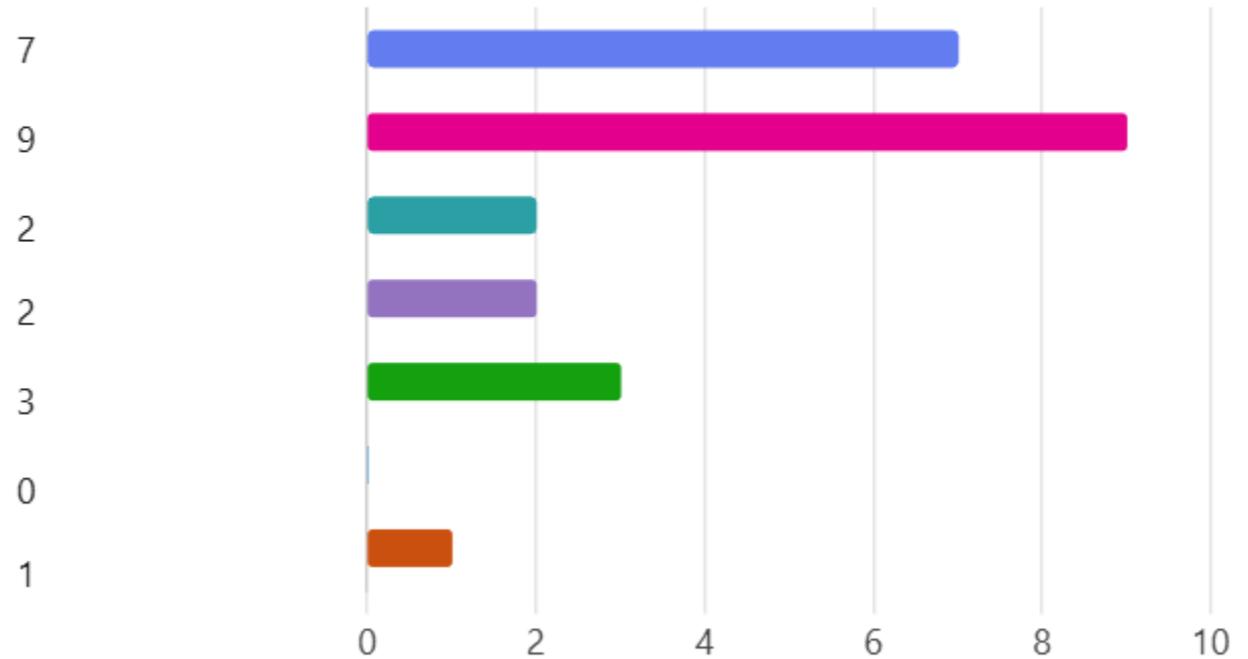
- Bioaugmentation
- Encouraging proliferation of certain strains over others

Oxidation in liquid phase

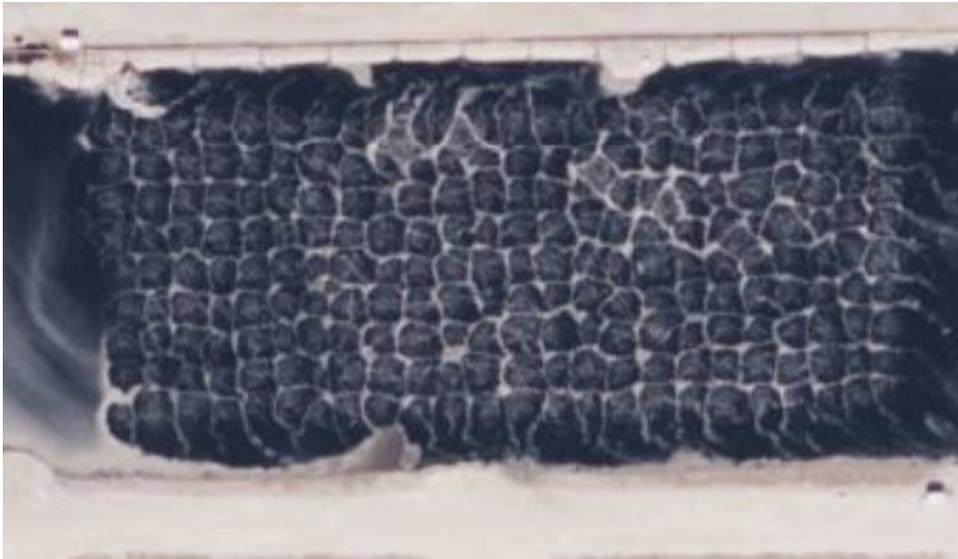
- Capping
- Whole-volume treatment
- Targeted corrections

1. **What methods are you currently using for odor control?** *(Select all that apply)*

- Aeration
- Chemical treatments (e.g., hydrogen peroxide, nitrates, biocides)
- Bioaugmentation
- Physical covers
- Vapor-phase odor control (e.g., masking agents, scrubbers)
- None
- Other

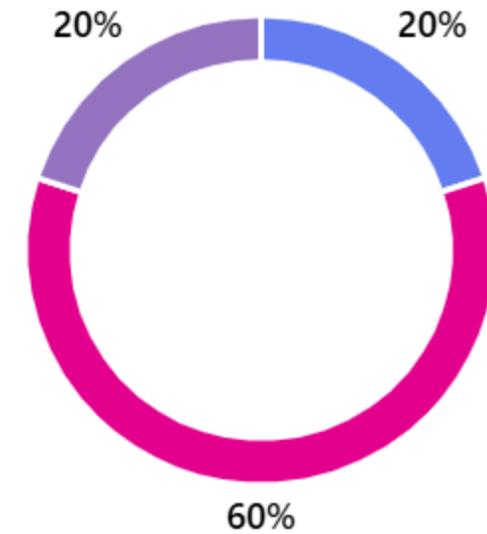


Strategies for Odor Control



2. How would you describe the effectiveness of your current odor control strategies?

● Very effective	2
● Somewhat effective	6
● Neutral	0
● Somewhat ineffective	2
● Very ineffective	0

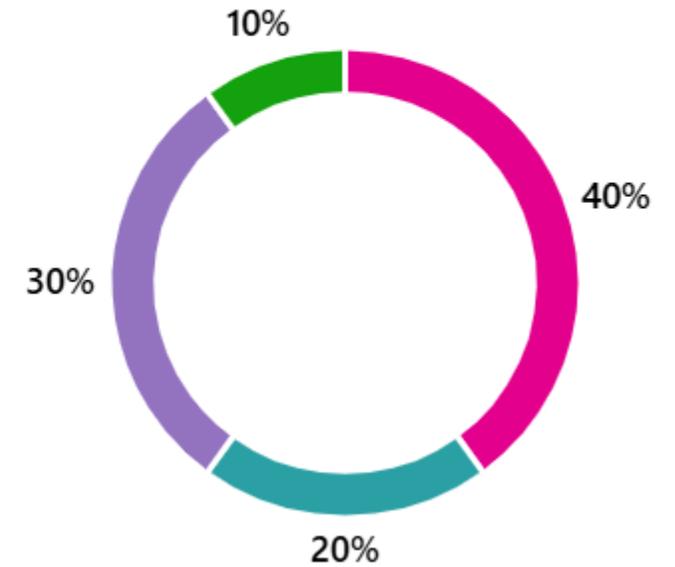


Where do we go from here?

- Start with methods that have potential to enhance water treatment
- Favor options that are simple to understand and apply
- Collect and record data
 - H₂S, ORP, DO, COD
- Simple performance trials
- Invest in aeration capacity, but understand scope needed
 - Oxygen uptake testing
- Anaerobic treatment is the only way to recapture energy and \$
- Chemicals often best solution for short term issues and on-demand treatment

6. How much does your facility spend annually on odor control?

● Less than \$100,000	0
● \$100,000–\$500,000	4
● \$500,000–\$1,000,000.	2
● More than \$1,000,000	3
● I'm not sure/ Prefer to not to answer	1



Questions?



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