

Soil Sampling Practices

Findings from a stakeholder survey



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<https://soiltestfrst.org/>



The Survey

WHY

To better understand soil-test-based P and K fertilizer decisions across the US, ultimately to inform further development of the FRST web-based tool.

WHAT

Survey of 23 questions on soil-test-based recommendations for P and K, and an additional 9 questions on soil sampling practices

WHO

Targeting stakeholders who actively engage in developing/implementing farm-level, soil-test-based P and K recommendations.



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WHEN

The survey was shared in early 2024, via Twitter/X and emailed to CCAs through ASA.

HOW

The survey was conducted using Qualtrics. Questions for sampling practices section were multiple choice.

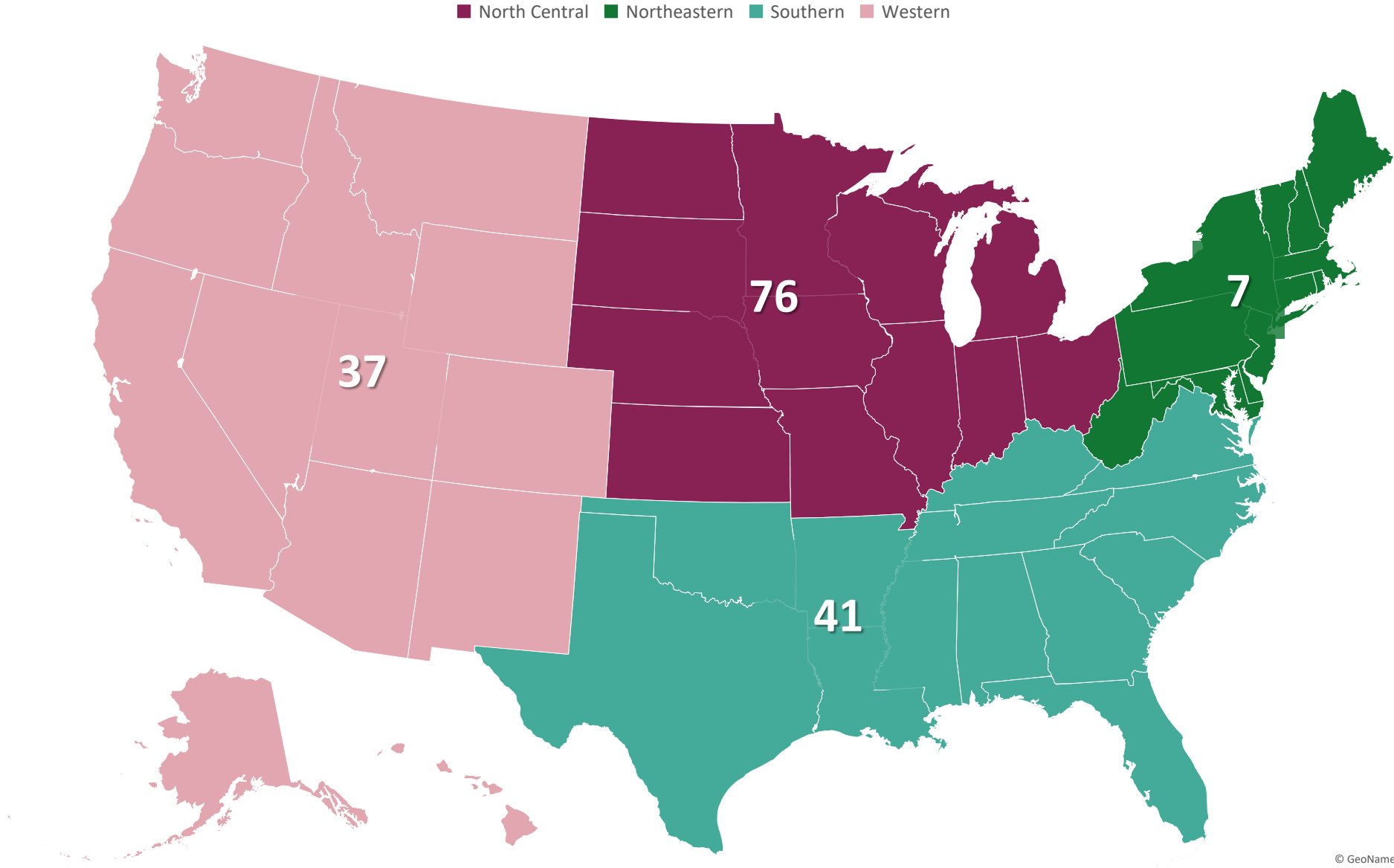
Respondents

- 242 respondents for first part of survey
- 173 respondents completed additional soil testing portion





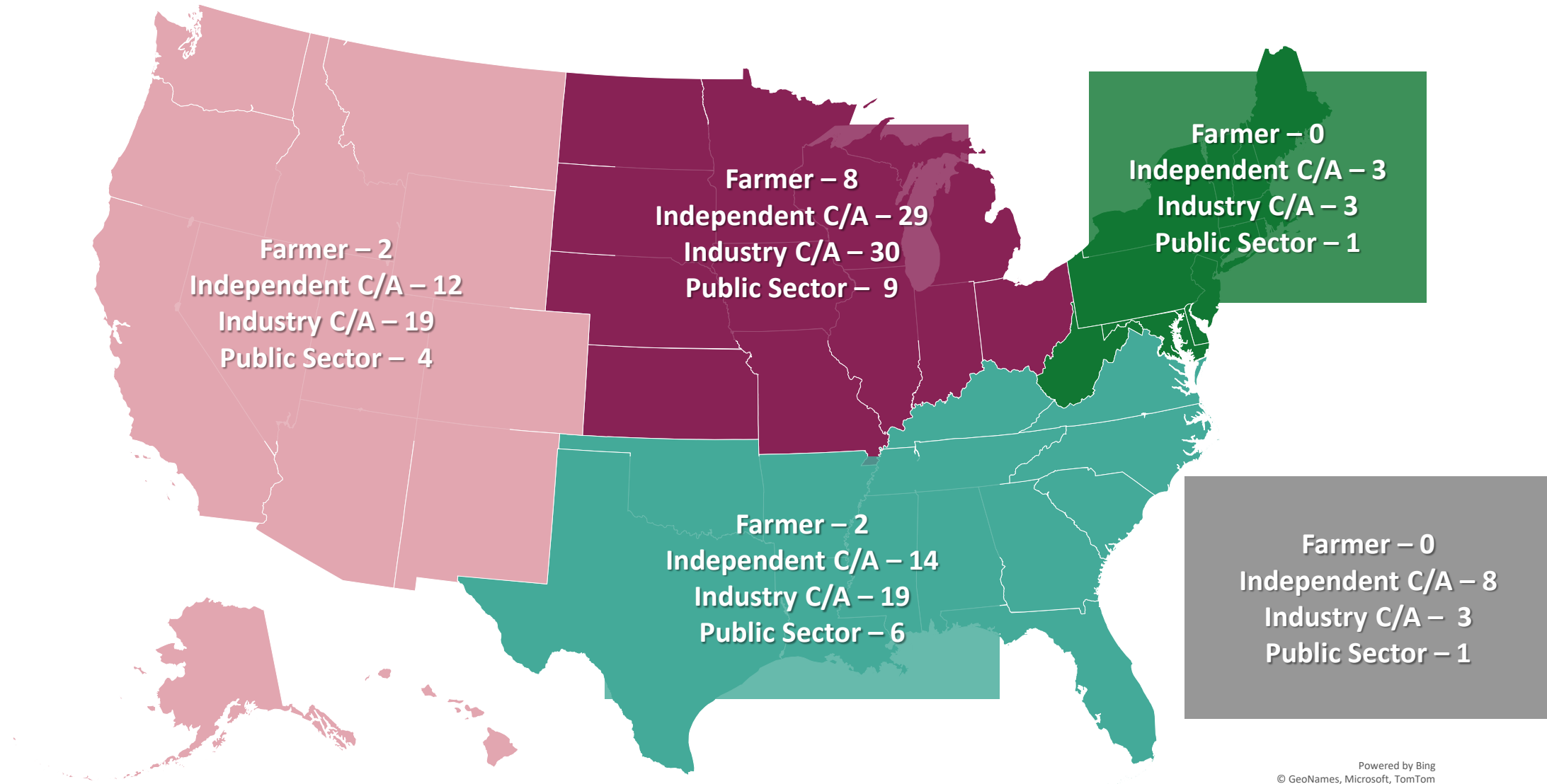
Respondents



12

Respondents

■ North Central ■ Northeastern ■ Southern ■ Western

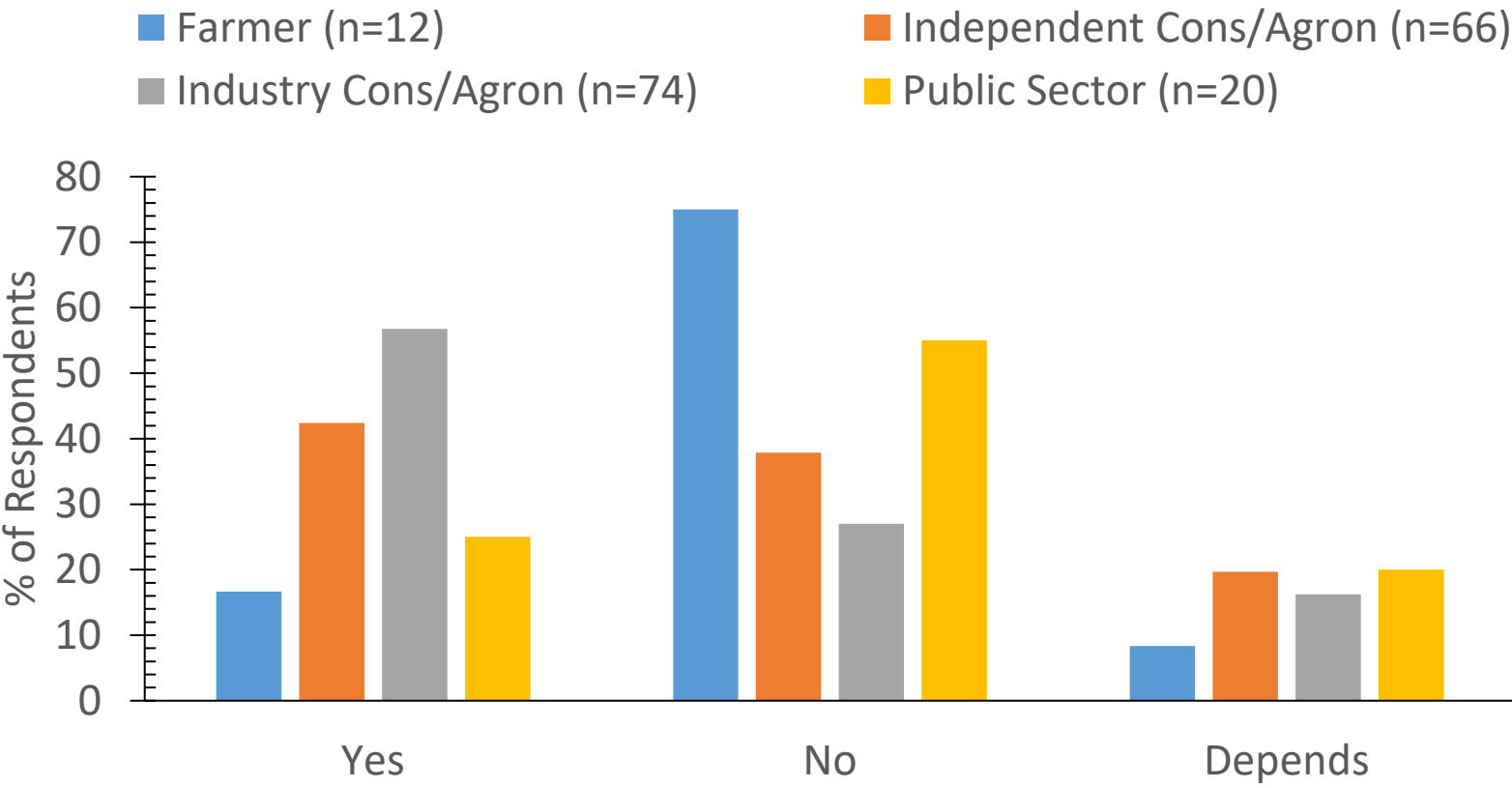


Questions of Interest

1. Do your crop fertilization practices/recs change **if land is owned vs. leased**?
2. What is the **primary sample depth** used to assess P/K availability?
3. How **often** are soil samples for P/K fertility collected?
4. What **factors are considered in sampling frequency**?
5. Which **months** do you collect P/K soil samples?
6. Do **factors influencing frequency sampling affect timing** of sampling?
7. What % of your managed acreage is **grid/zone sampled**?
8. What % of your managed acreage **receives VR P**?
9. What % of you managed acreage **receives VR K**?



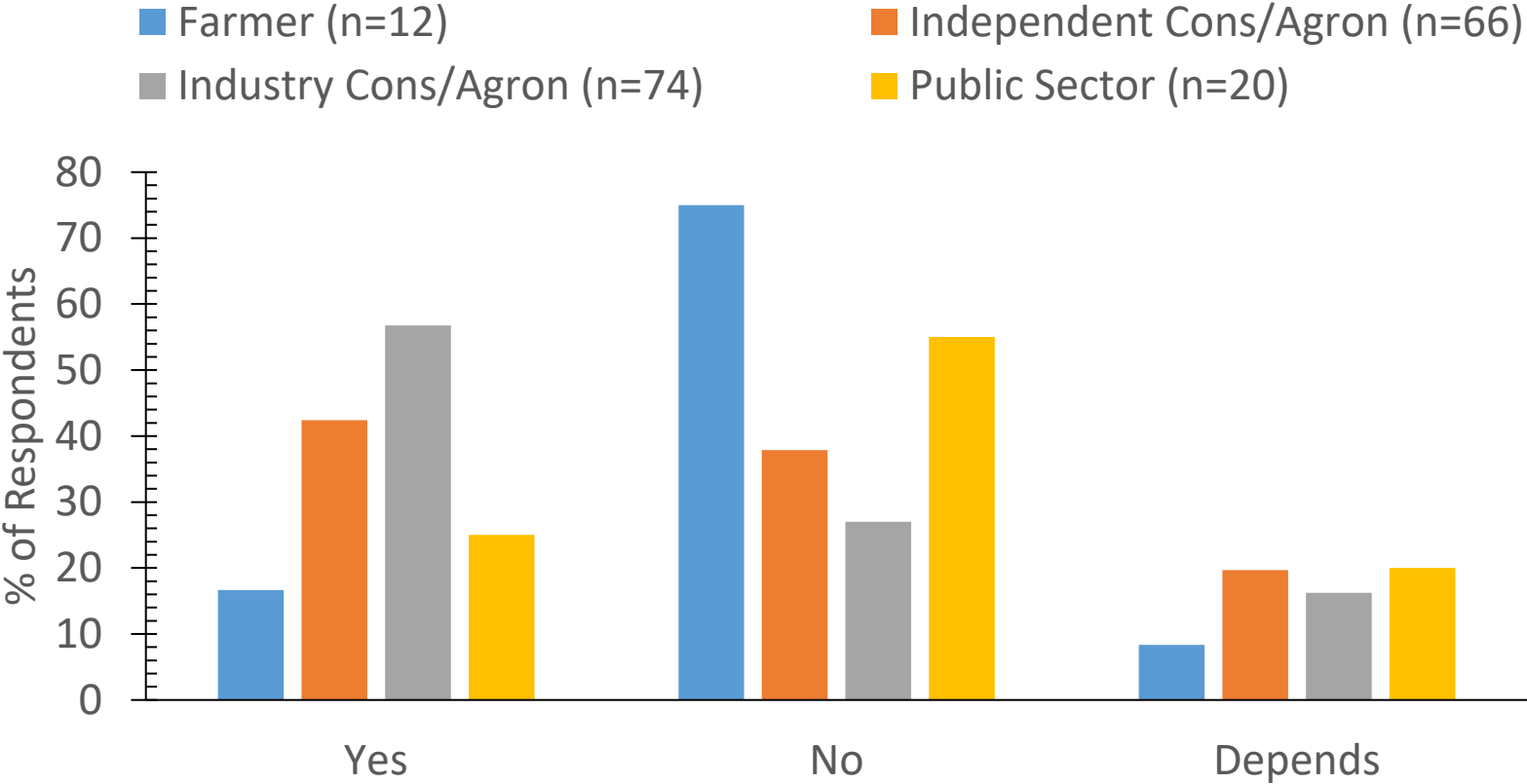
Do your crop fertilization practices/recs change if land is owned vs. leased?



- Most farmers said no
- >50% of public sector said no
- Industry leaned yes
- Independent split



Do your crop fertilization practices/recs change if land is owned vs. leased?

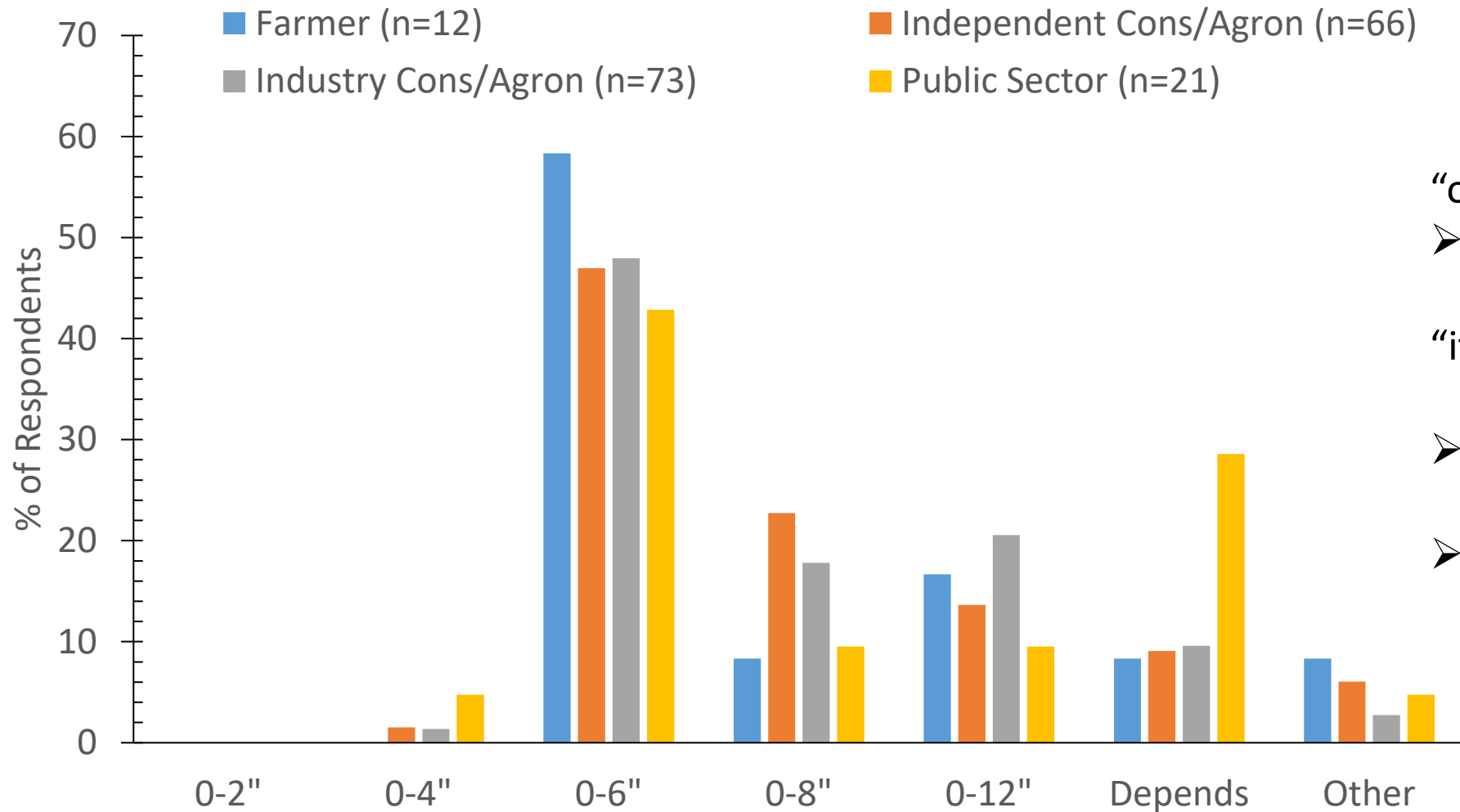


“it depends on...”

- Length of lease
- Terms of lease
- Farmer (the renter) preference
- Often don't recommend building on leased land



What is the **primary sample depth** used to assess P/K availability?



“other”

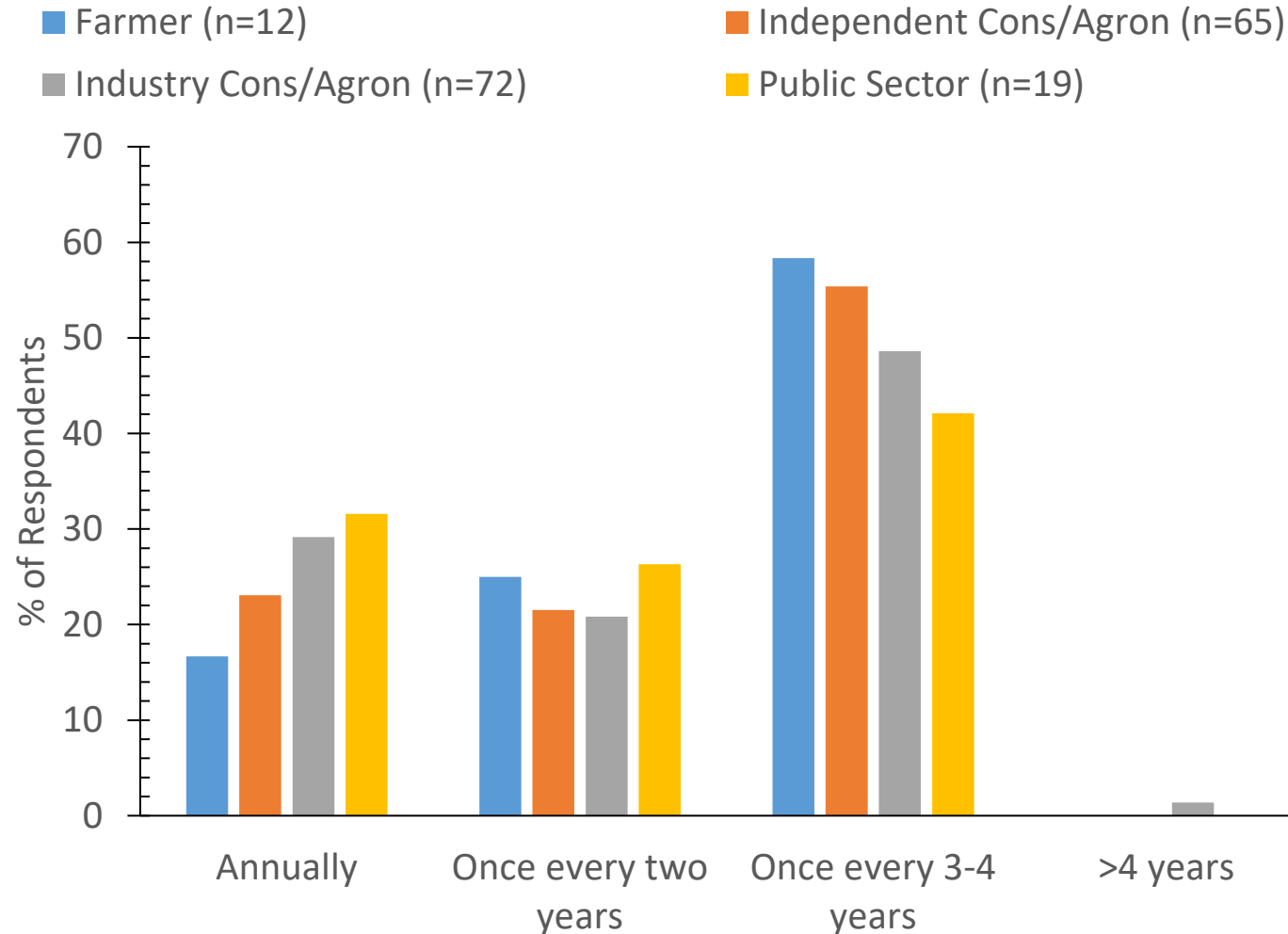
➤ 0-7"

“it depends on...”

➤ Tillage system (shallower for no-till)

➤ Crop rotation/cropping system

How **often** are soil samples for P/K fertility collected?



Common factors in frequency decision:

➤ Farmers

- Crop rotation sequence
- P/K fertility levels
- Soil buffering capacity
- Soil pH
- Crop yield

➤ Consultant/Agronomists

- Crop rotation sequence
- P/K fertility levels
- Crop yield

➤ Public Sector

- Crop rotation sequence
- P/K fertility levels
- Crop yield

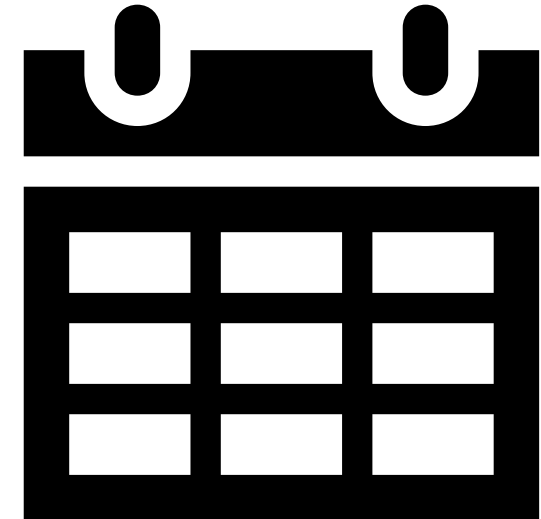
Which **months** do you collect P/K soil samples?

Months when soil samples are normally collected to inform P/K fertilizer decisions:

- October/November were most popular, across the board
- March/April was the next most popular time

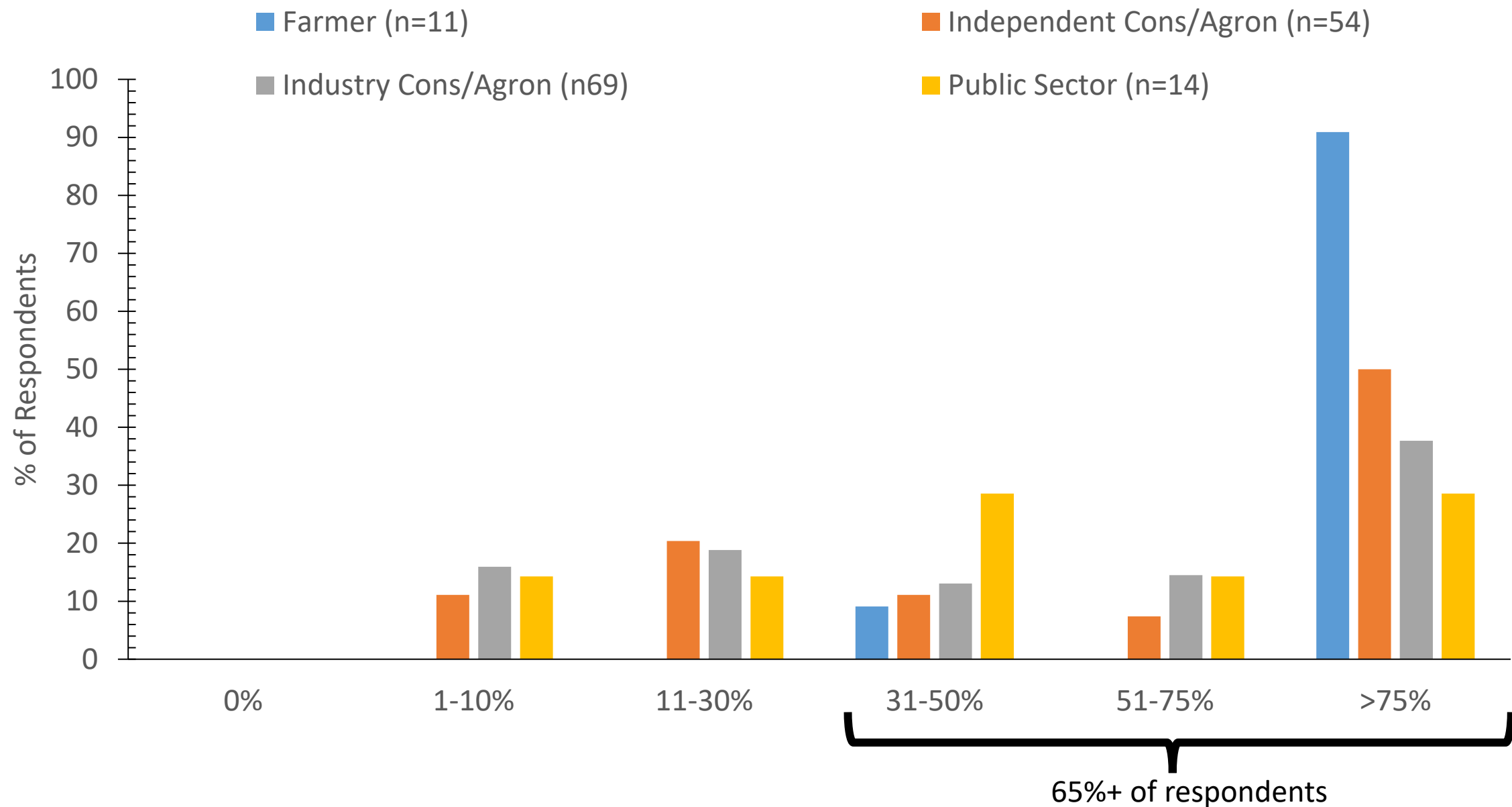
Do factors affecting soil sampling frequency affect timing of soil sample collection?

- Farmers: 100% no
- Consultant/agronomist groups: 60-40, no-yes
- Public sector: 50-50, no-yes





What % of your managed acreage is grid/zone sampled?

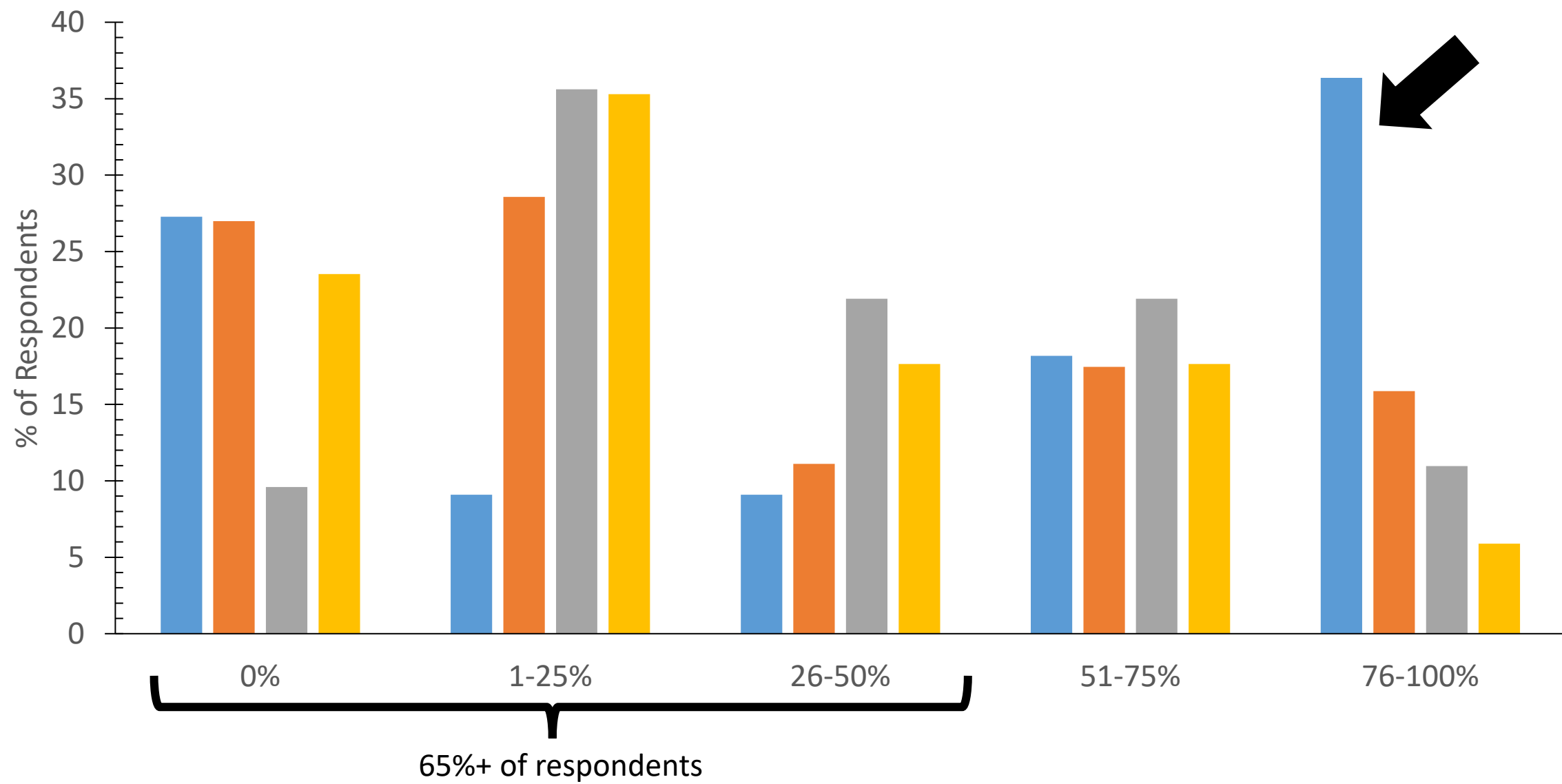




What % of your managed acreage receives VR P?

**very similar for K*

■ Farmer (n=12) ■ Independent Cons/Agron (n=65) ■ Industry Cons/Agron (n=74) ■ Public Sector (n=17)



What did we learn?

- ✓ Owned vs. leased land sometimes affects fertilization for P and K, particularly depending on length of lease and terms of the lease
- ✓ Common soil sample depths include 0-6", 0-8", and 0-12", but sample depth may depend on tillage regime and/or cropping system
- ✓ Soil samples are most commonly collected every 3-4 years, but factors like crop rotation, crop yield, and P/K fertility may change this
- ✓ October/November is most common soil sampling time
- ✓ Grid sampling occurs on at least a portion of all respondents' managed acres, but not all respondents report at least some acres being VR managed for P or K.

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