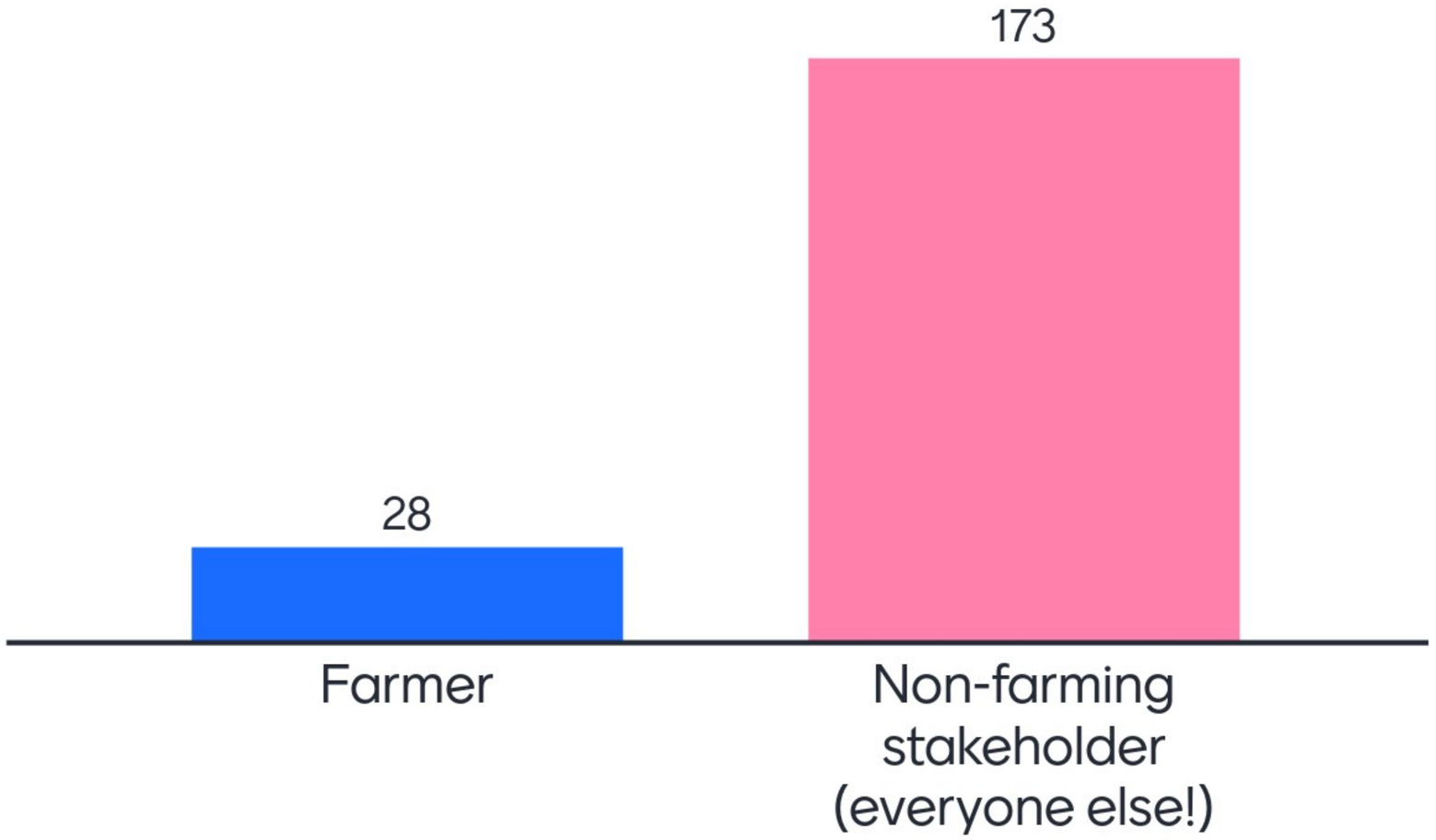
What best describes you?

Mentimeter



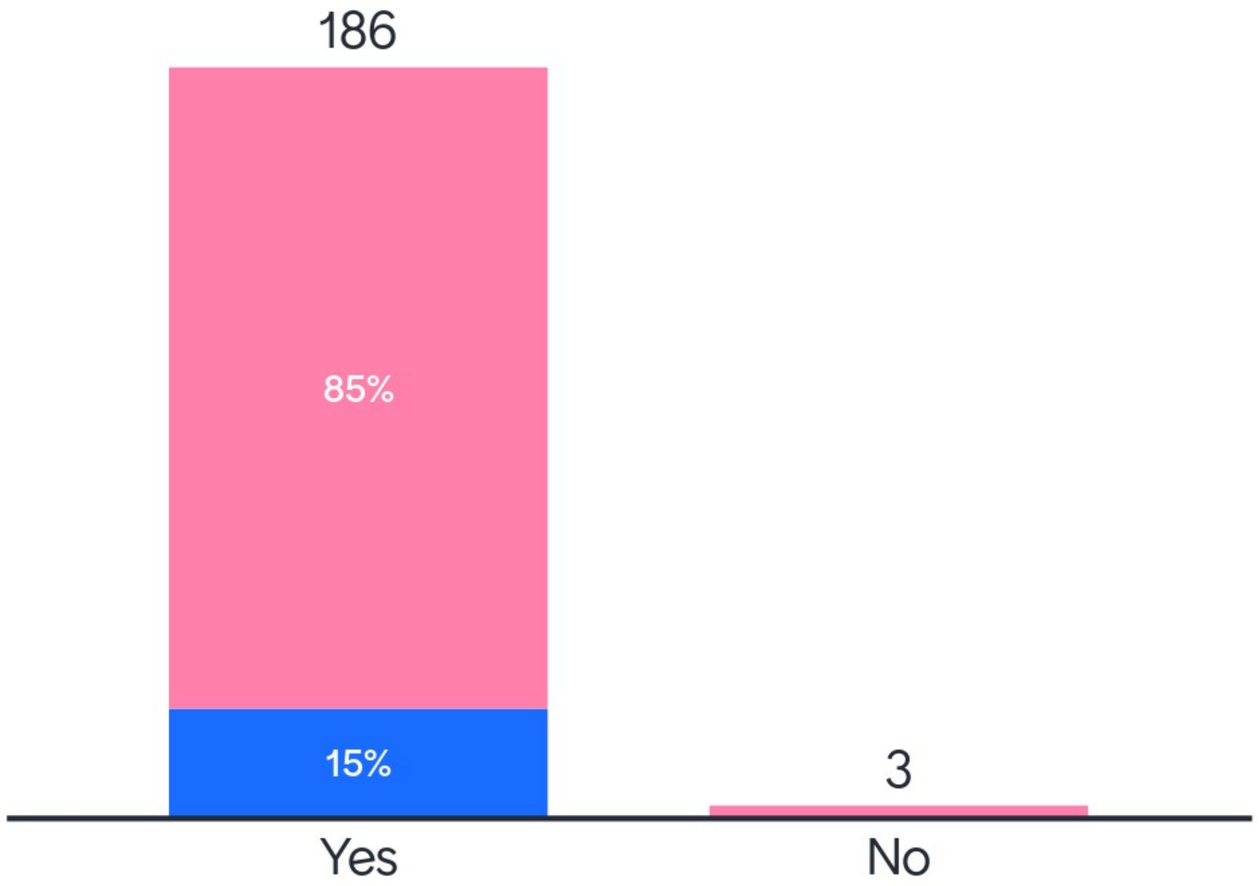
201

4R Fertilizer Management is Right Source at the Right Rate, Right Time, Right Place

What's the first word or short phrase that comes to mind when you think of 4R?

188

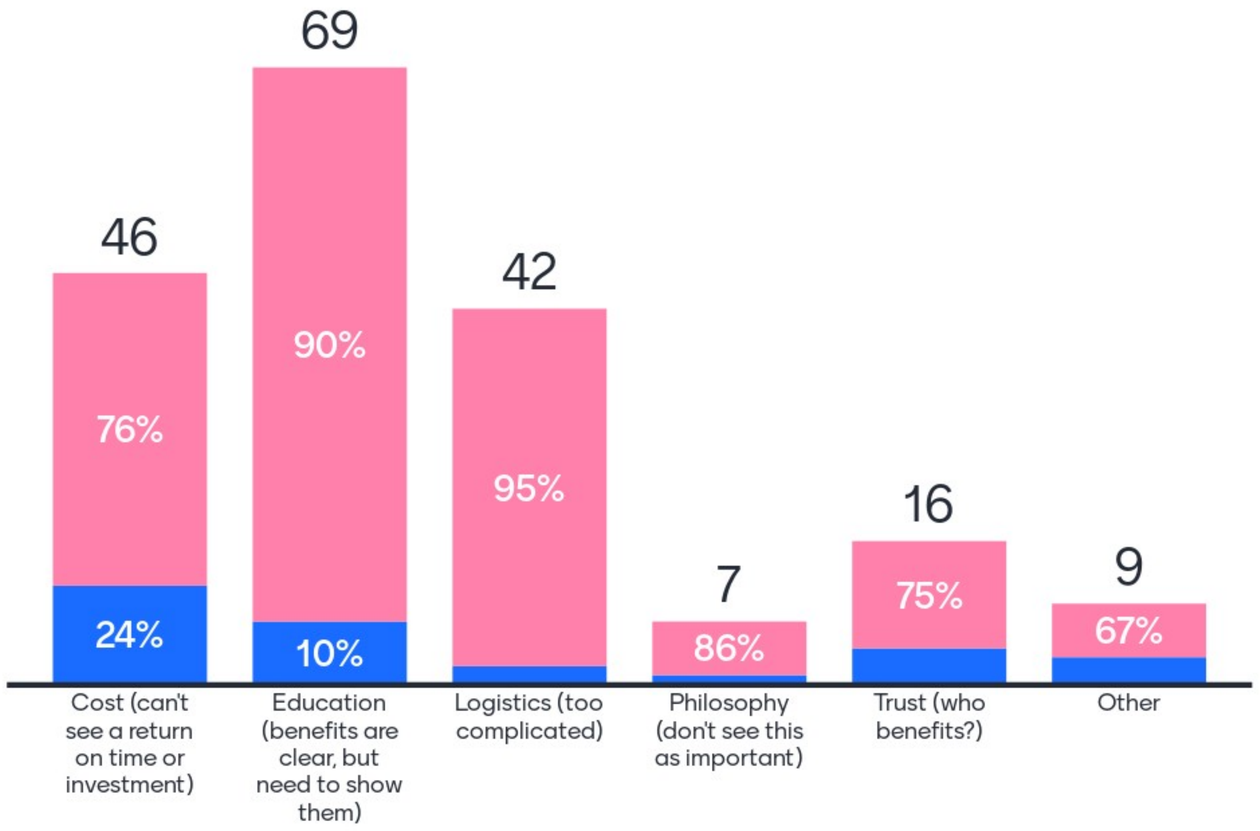
Do you think 4R is a valuable initiative?



What best describes you?

- Farmer
- Non-farming stakeholder (everyone else!)

What is the biggest barrier to 4R adoption?

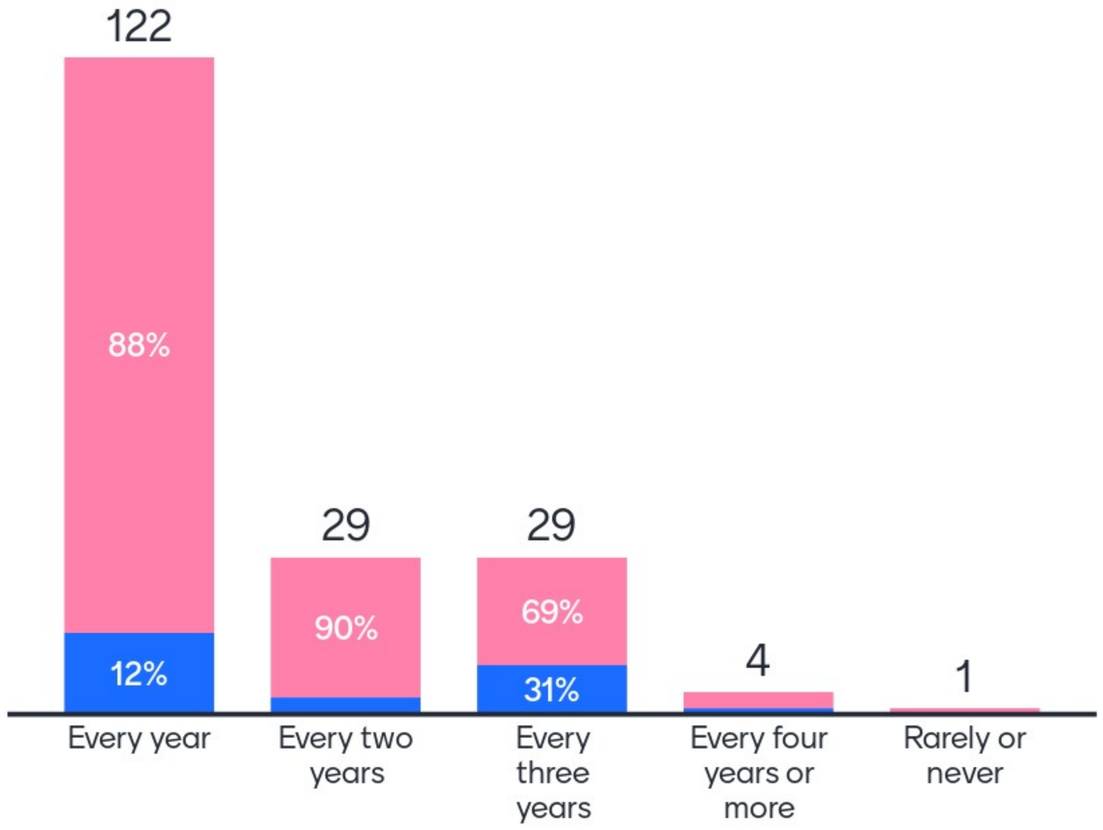


What best describes you?

- Farmer
- Non-farming stakeholder (everyone else!)

189

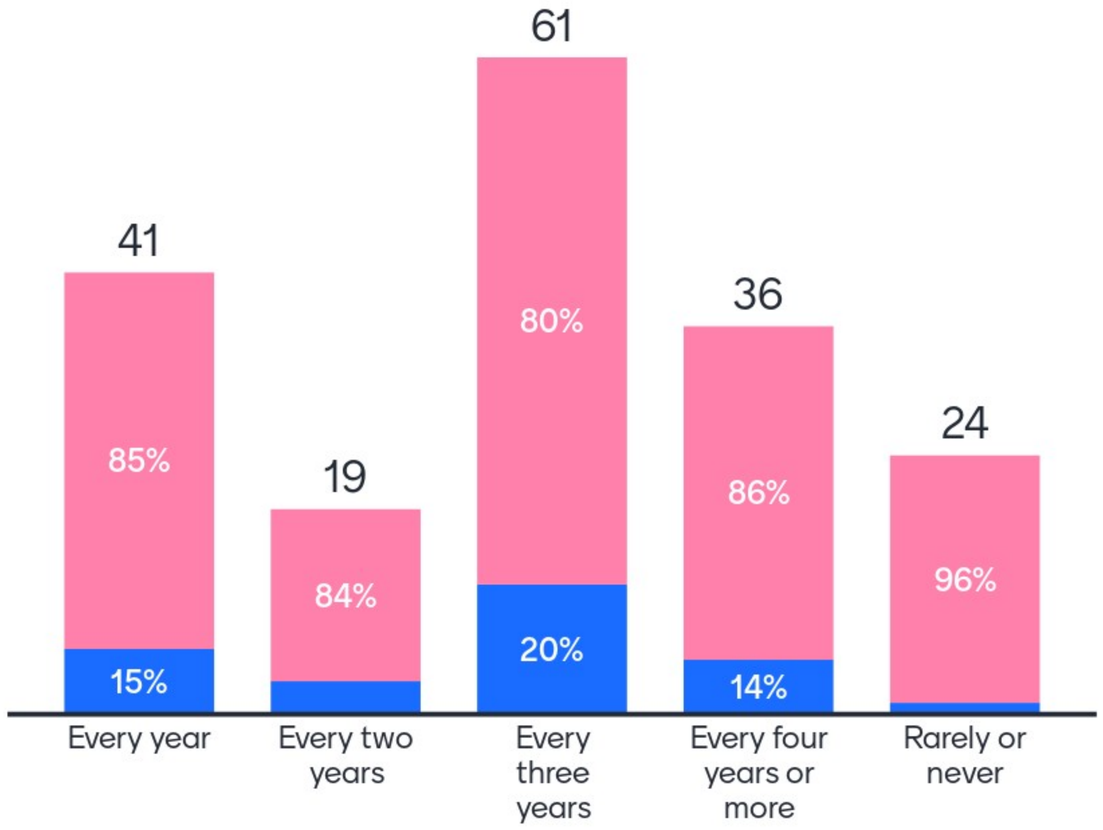
How often SHOULD a person soil test each field?



What best describes you?

- Farmer
- Non-farming stakeholder (everyone else!)

In reality, how often does each field get a soil test?

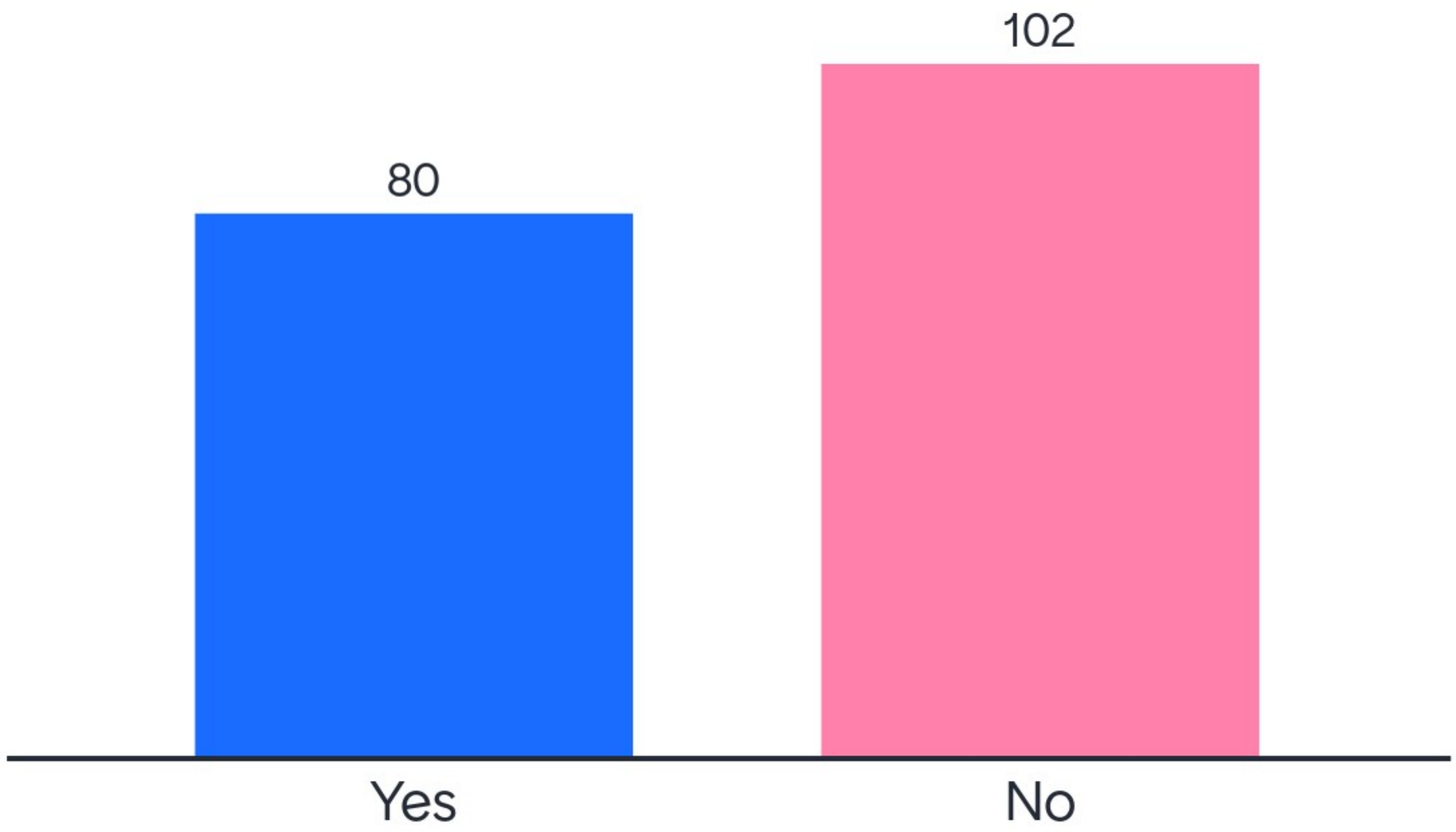


What best describes you?

- Farmer
- Non-farming stakeholder (everyone else!)

Is there enough soil testing capacity if everyone chooses to test fields in 2021?

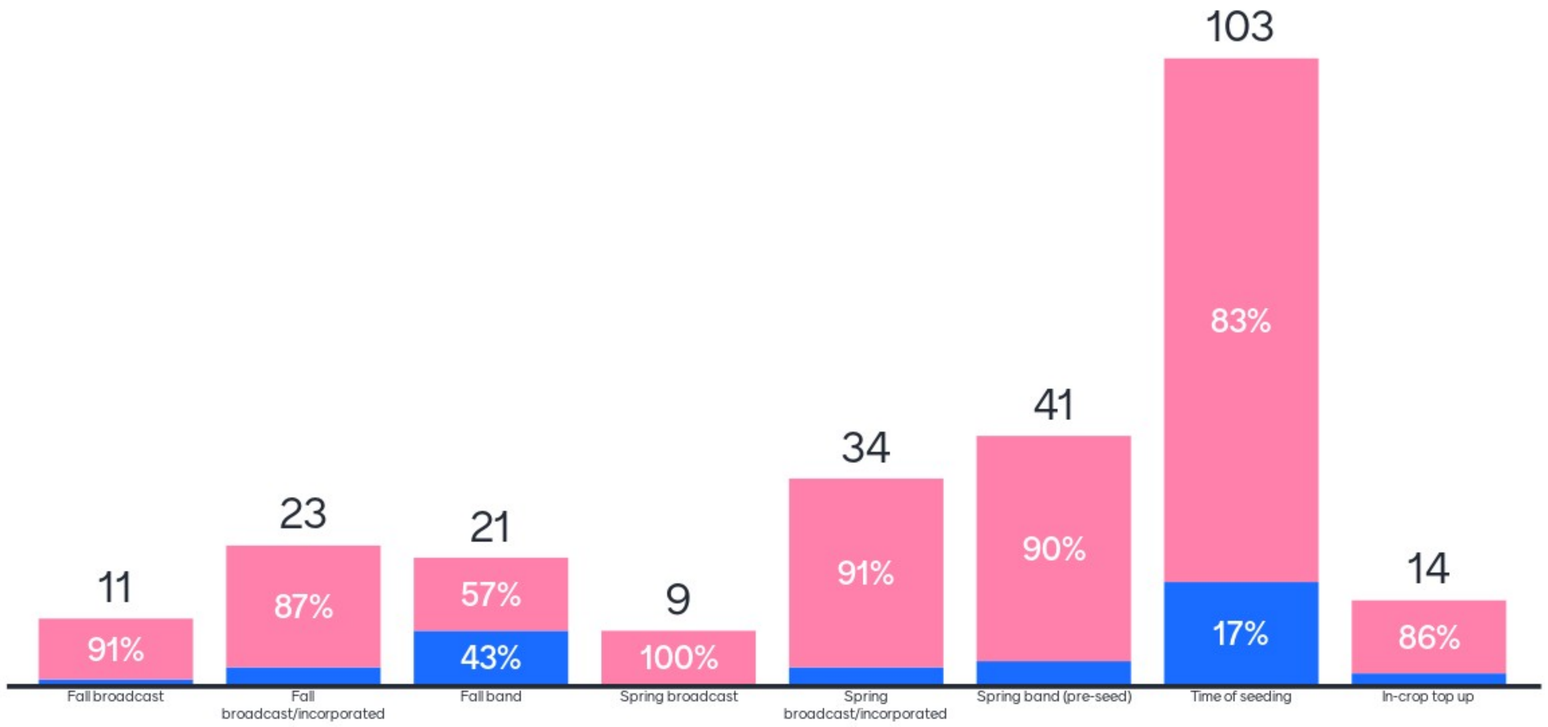
Mentimeter



182

What is your preferred way(s) to apply nitrogen for canola?

Mentimeter

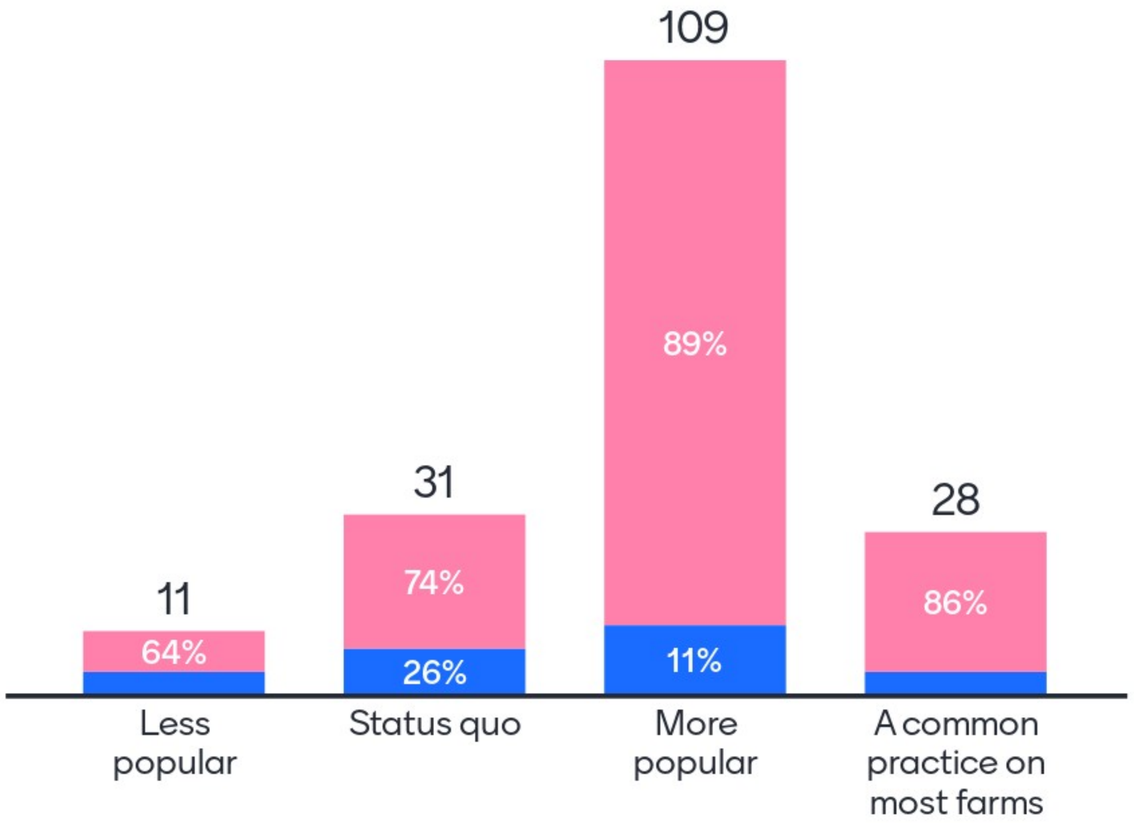


What best describes you?

- Farmer
- Non-farming stakeholder (everyone else!)

256

Where do you see variable-rate fertilizer adoption in five years time?



What best describes you?

- Farmer
- Non-farming stakeholder (everyone else!)

What practice(s) do you think will make the biggest difference in terms of improving fertilizer (nutrient use) efficiency?

Mentimeter

Right placement and timing

Placement

fertilizer rates

Spring banding, time-of-planting application consistently shows the highest efficiency in Canadian fertilizer application. Specifically N.

testing

Industry research

Placement of fertilizer

site based programs

cost

179

What practice(s) do you think will make the biggest difference in terms of improving fertilizer (nutrient use) efficiency?

Mentimeter

stop broadcasting!!

slow release products

Variable Rate

Right hybrids, 4R, education, economics and logistics

availability of supply

split applications

Education

The timing of applications

Yearly field-based soil sampling

179

What practice(s) do you think will make the biggest difference in terms of improving fertilizer (nutrient use) efficiency?

Mentimeter

Right variety, 4R and education and logistics

Education

soil testing

Less cost to use higher efficiency products. Often cost of these products outweighs the benefits. Can often just add more fertilizer to compensate for losses.

I don't know

Further research into soil health and how fertilizer can be better utilized by plants and soils

Irrigation strategy.

genetic diversity and crop roatation

Education

179

What practice(s) do you think will make the biggest difference in terms of improving fertilizer (nutrient use) efficiency?

Mentimeter

provide crops with the appropriate N rate with the appropriate placement, timing and source of N application

The rate combined with the right place at the right time.

proper rates and timing

variable management within fields

Fall/winter broadcast

precision agriculure

refining nitrogen rates

Variable rate technology

ROI

179

What practice(s) do you think will make the biggest difference in terms of improving fertilizer (nutrient use) efficiency?

Mentimeter

- Genetics
- Further education on the long term benefits of 4R
- zero till
- consistent testing
- Plant Genetics, Microryhzome research
- Adding clear Incentives and cost offsets for small producers
- appropriate rate and timing
- Getting soil phosphate levels to where they should be
- variable management within fields

179

What practice(s) do you think will make the biggest difference in terms of improving fertilizer (nutrient use) efficiency?

Mentimeter

Showing a consistence performance with newer methods versus traditional methods.

slow releasebetter hybrids

Precision farming

cost of variable rate equipment

Education at all levels, and accessibility to soil testing and good agronomic advice.

A better understanding of nitrogen uptake in response to soil water availability.

Direct seeding with double shoot

Spring banding.

Genetics

179

What practice(s) do you think will make the biggest difference in terms of improving fertilizer (nutrient use) efficiency?

Mentimeter

- Unsure
- irrigation
- Maintain soil fertility
- soil testing
- Crop rotations
- rapid soil testing
- Variable rate options
- GHG emmission regulations
- slow release nitrogen

179

What practice(s) do you think will make the biggest difference in terms of improving fertilizer (nutrient use) efficiency?

Mentimeter

Placement

good crop rotation

rapid (full spectrum) soil testing

Adjusting the fertilizer rate for the productivity of different areas of a field.

Genetic improvements and slow release nitrogen technologies (affordability)

Refining rate based on environment and yield potential

Genetic improvement of hybrids. Improving seed safety

good weather

no till

179

What practice(s) do you think will make the biggest difference in terms of improving fertilizer (nutrient use) efficiency?

Mentimeter

Precision farming

G x E x N-rate

Improved fertilizer choices - advances in homogenous pellets that have improved seed safety.

type of product and timing

Money

Innovation in equipment and technology.

Reducing tillage

Variable rate

Enhanced efficiency fertilizers

179

What practice(s) do you think will make the biggest difference in terms of improving fertilizer (nutrient use) efficiency?

Mentimeter

More education; Annual soil testing

Variable rate application

Rotation

Soil testing

Better products for broadcast applocations. Quicker and fewer fills ar seeding but currently less efficient

Choice of cultivar

Precision farming

4R

Don't know

179

What practice(s) do you think will make the biggest difference in terms of improving fertilizer (nutrient use) efficiency?

Mentimeter

annual soil testlimited broadcast application34-0-0

Reduced costs in soil testing. Are there any innovations coming that may drop the price?

What's sustainable for each farming practice on each individual farm.

A price drop on Slow release or timed release fertilizer (eg ESN)

Soil testing combined with record keeping to make informed decisions

Combination of consistent soil testing and following the 4 Rs as needed.

Application

Rotation and soil testing

know the nitrogen levels of your soils, the efficiency of nitrogen

179

What practice(s) do you think will make the biggest difference in terms of improving fertilizer (nutrient use) efficiency?

Mentimeter

- technology development- fertilizer blends and hybrids
- annual soil N testing
- Precision agriculture by varieties & location
- Soil Testing
- Rotation based on root structure
- Rotating crops
- Better hybrids
- N inhibitor use.
- less broadcast application

179

What practice(s) do you think will make the biggest difference in terms of improving fertilizer (nutrient use) efficiency?

Mentimeter

Timing	34-0-0	Education
4R	VR	4R
Using best timing and placement practices.	Banding with seeding.	Education

179

What practice(s) do you think will make the biggest difference in terms of improving fertilizer (nutrient use) efficiency?

Mentimeter

Increased deep banding of nitrogen

Broad adoption of regular soil testing.Eliminating broadcast on frozen ground and snow.

Nitrogen and other product stabilizers

Soil testing or nutrient testing/scanning built into application equipment.

Placement

Right application

4R

application technology

crop rotation, 4R, soil test, genotype

179

What practice(s) do you think will make the biggest difference in terms of improving fertilizer (nutrient use) efficiency?

Mentimeter

fertilize to a realistic goalvariable rate stabilizers

Placement

Improved soil testing/mapping as well as proper placement/timing

Soil sampling

fertilizer management

Application choice

Testing

Variety improvements

Placememt and timing

179

What practice(s) do you think will make the biggest difference in terms of improving fertilizer (nutrient use) efficiency?

Mentimeter

low price. diversity, leaf application

Recycling

Precision farming

Right placement, timing and amount

Industry Research

Fertilizer rates and placement

soil testing

Placement and timming

Research

179

What practice(s) do you think will make the biggest difference in terms of improving fertilizer (nutrient use) efficiency?

Mentimeter

More and regular testing

site specific N split

good genetics

Placement

Spring and split application

education

Recapture

independent research

education

179

What practice(s) do you think will make the biggest difference in terms of improving fertilizer (nutrient use) efficiency?

Mentimeter

Right placement and timing

Hybrids

placement

placement

Placement and timing

Prediction

Use of specialized fertilizers applied in necessary proximity to the growing crop

Educating and continued research

Placement

179

What practice(s) do you think will make the biggest difference in terms of improving fertilizer (nutrient use) efficiency?

Mentimeter

- 4R, cost
- Placement of fertilizer, testing
- Availability of on-the-go soil analysis in the field
- The 4R answer
- soil sampling
- Right hybrids education economics and logistics
- dont know
- rotations
- GPS

179

What practice(s) do you think will make the biggest difference in terms of improving fertilizer (nutrient use) efficiency?

Mentimeter

End use

Soil

Education

Prediction of moisture and temperature in growing season

hybrid by nitrogen

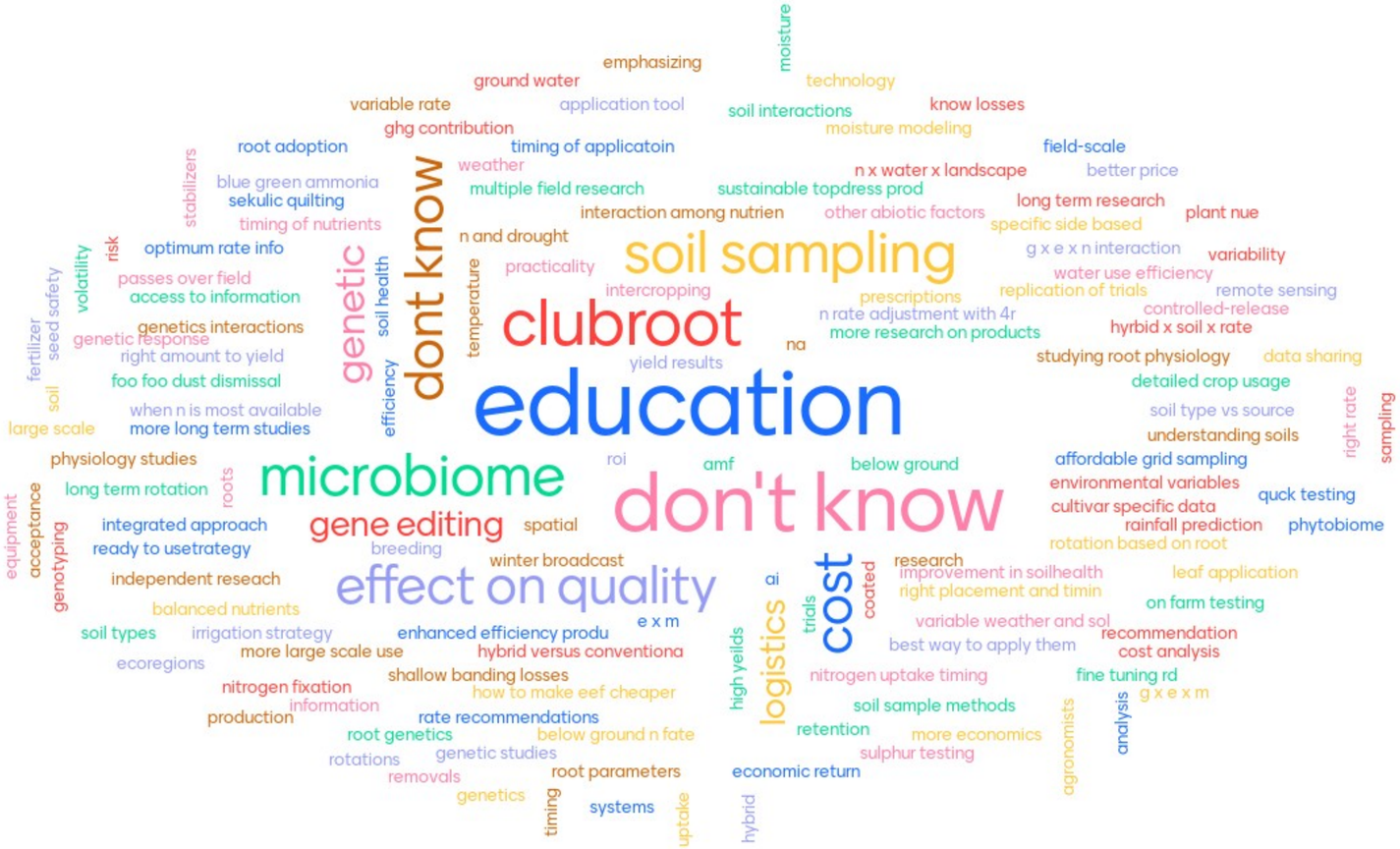
Education

Microbiome

Soil testing every year

179

What research/agronomy is missing to help us improve fertilizer (nutrient use) efficiency? (1-3 words)



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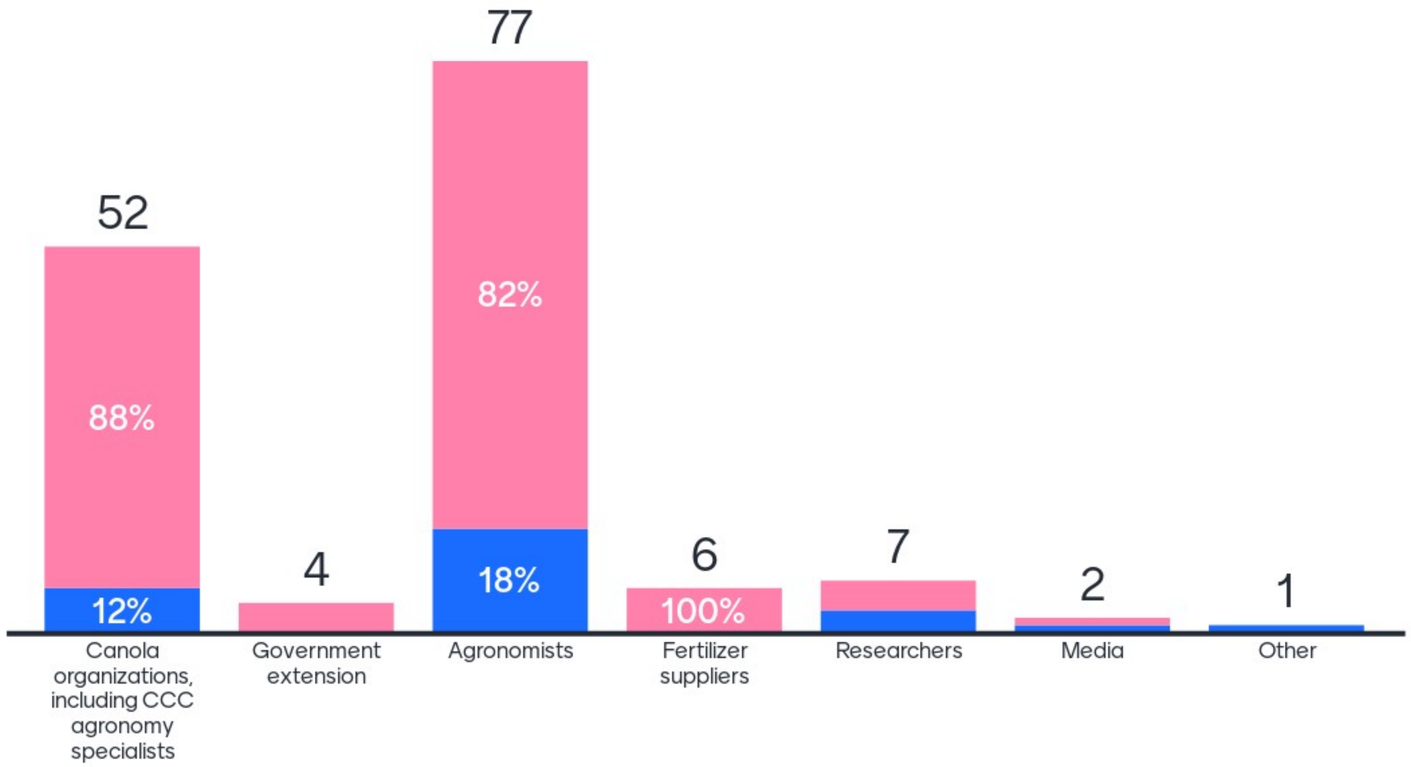
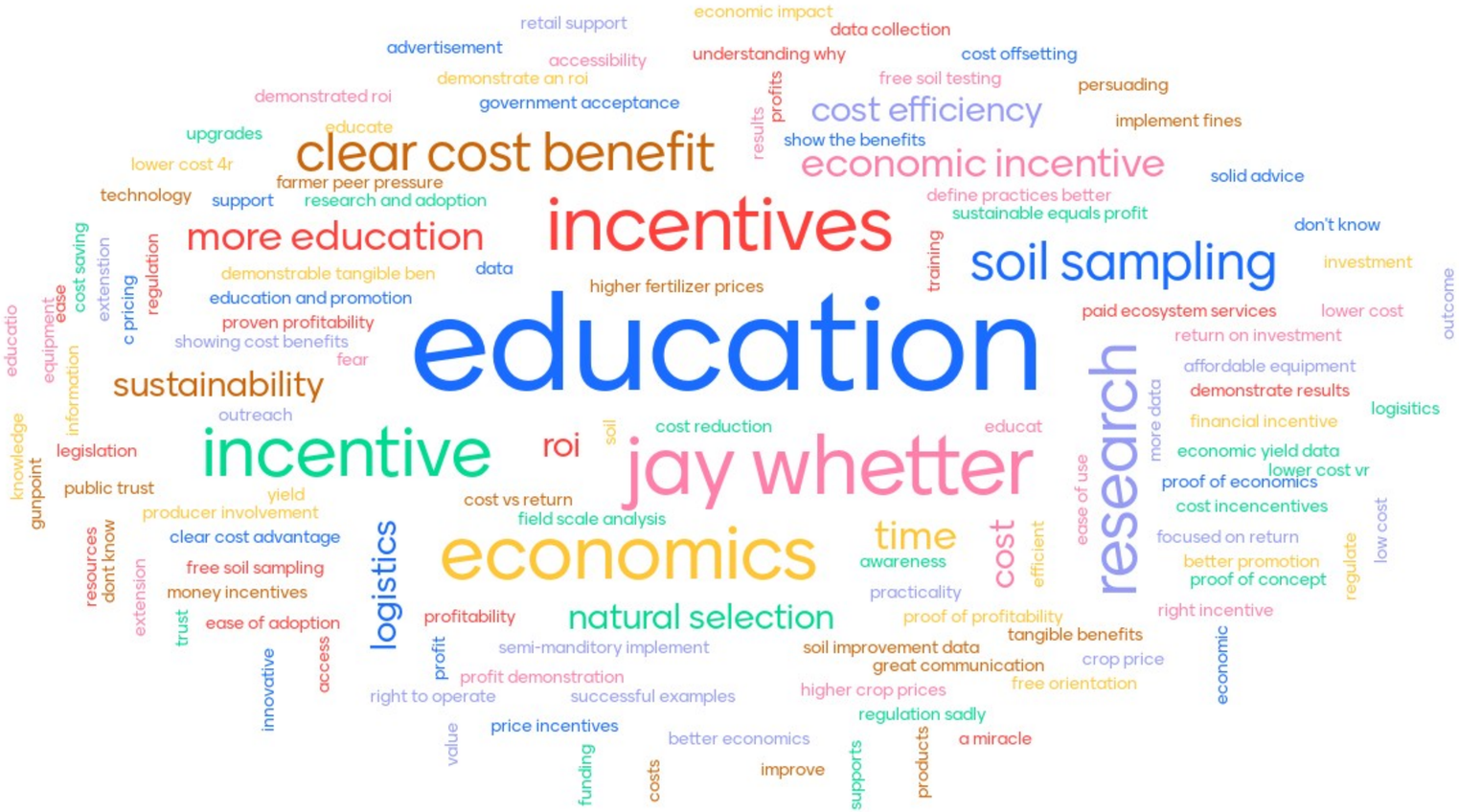
Who is best equipped to deliver fertilizer tips/advice to Canadian canola farmers?



What best describes you?

- Farmer
- Non-farming stakeholder (everyone else!)

What do you think it will take to get 90% of growers using 4R practices? (1-3 words)



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