

Reinforcement Through Community:

The Role of Farmer and Advisor Social Networks in Supporting Persistent Innovation and Outreach in a Changing Climate

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To share:

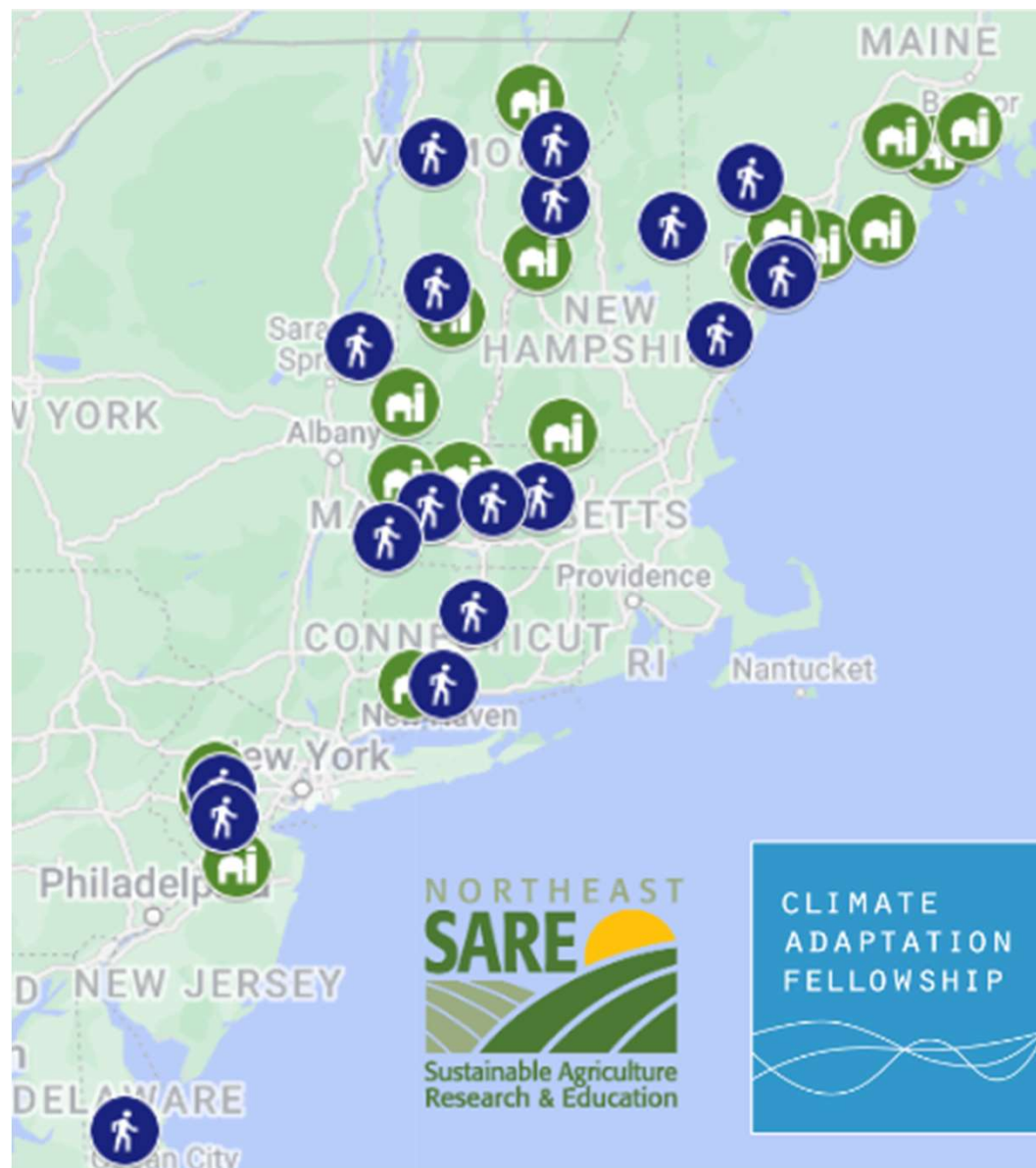
- Description of research
- Spread of conservation and adaptation behavior
- Climate adaptation social networks
- Digging into reciprocal relationships and peers in networks!
- The role of community support



Research case study

2021-22 *Climate Adaptation Fellowship* (CAF), analyzes the **two-year post-program outcomes**

- 20 farmers, 16 Advisors, some both
 - **Vegetable and small fruit growers.** Size from 1- 800 acres. Maine to NJ.
 - **Advisors** from Extension, Farmland Trust, NRCS, private
- One year long
- Week-long workshops at start & end (zoom)
- Farmer-Advisor Pairs: One year to conduct:
 - A farm climate risk assessment + economic analysis,
 - on-farm demonstration or trial,
 - 3-5 outreach activities.
- Utilizing a “community-of-practice” and **peer-to-peer learning** approach



Conservation and Adaptation Behaviors

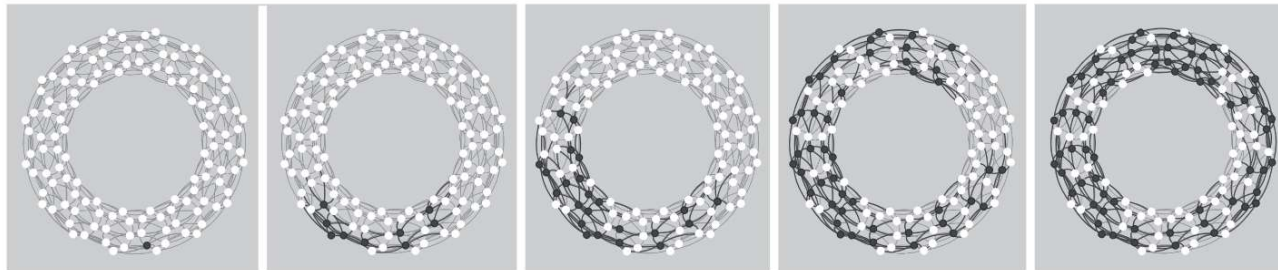
To support change, we should:

- Focus on **systems** and **outcomes** rather than single practices
- **Increase and broaden social connections for farmers** to support adoption of new systems
(Reimer et al. 2023) Scaling up conservation agriculture.

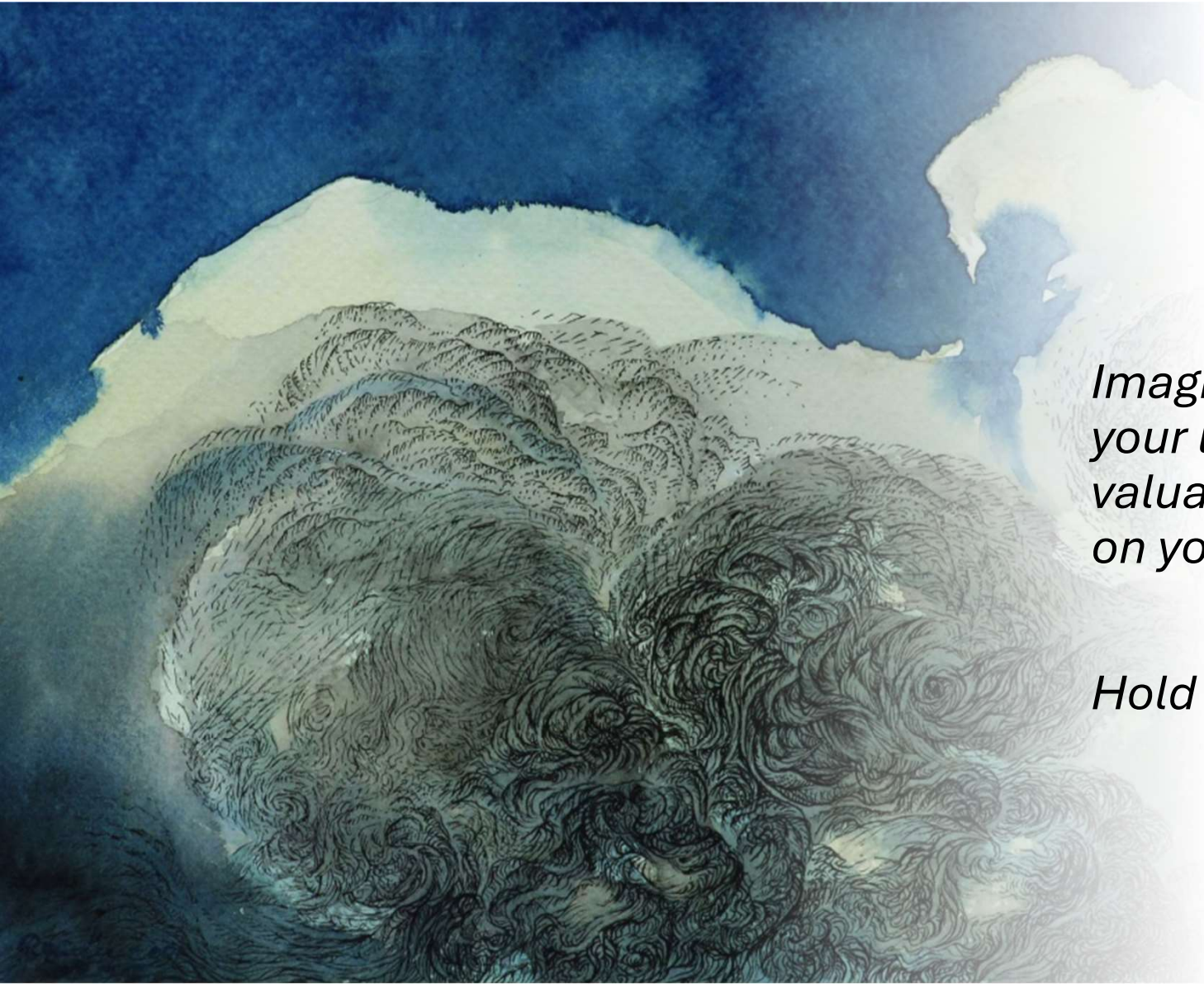
→What role do networks play in support?

Behavior that is “costly, risky, or involves complementarity” spreads via complex contagion, rather than simple diffusion.

Spread and maintenance of the behavior(s) requires multiple trusted reinforcing connections
(Centola 2018)



Complex contagion in a clustered network (Centola 2018)



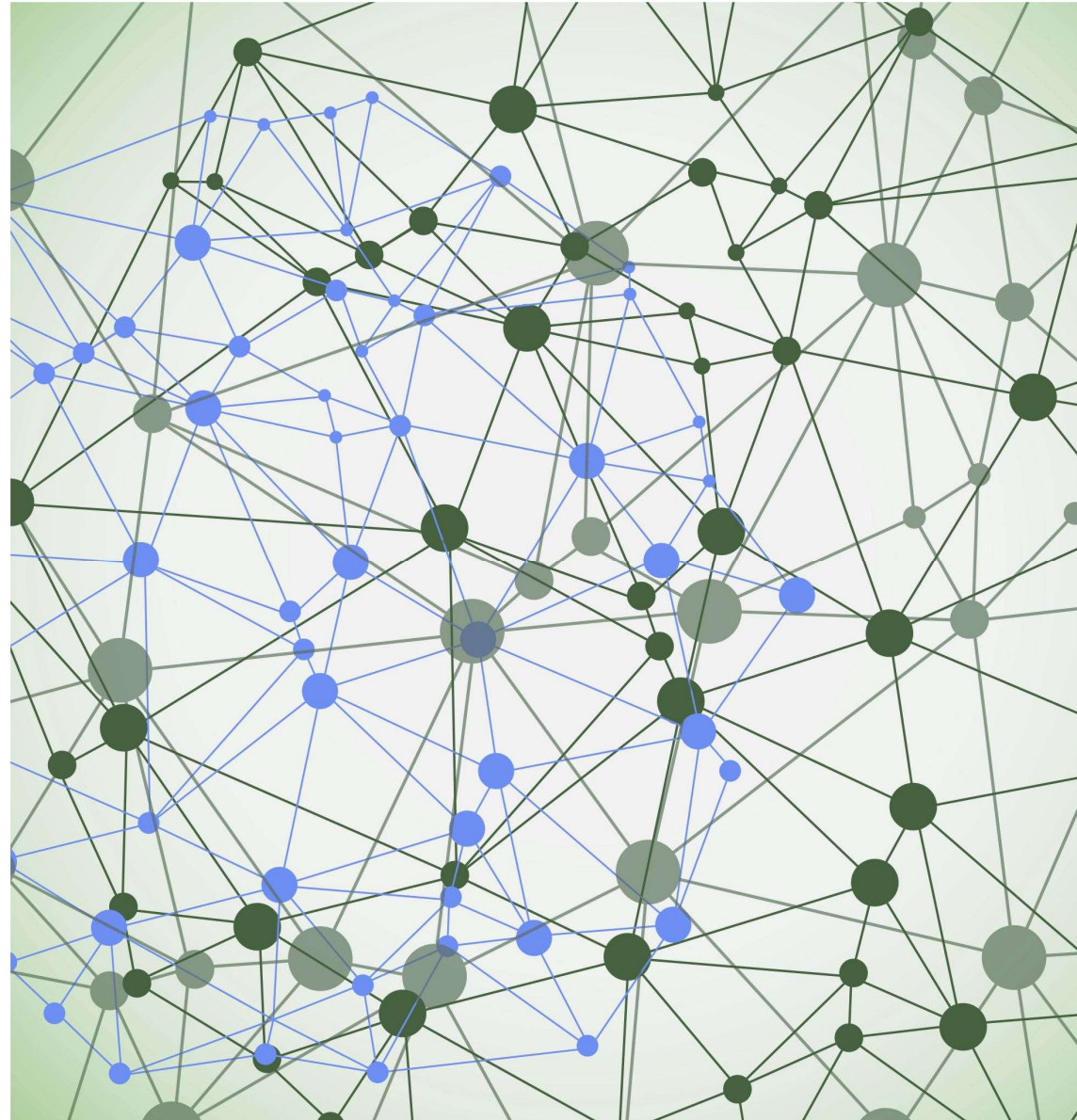
*Imagine a person(s) in
your life that gives you
valuable advice related
on your work/career.*

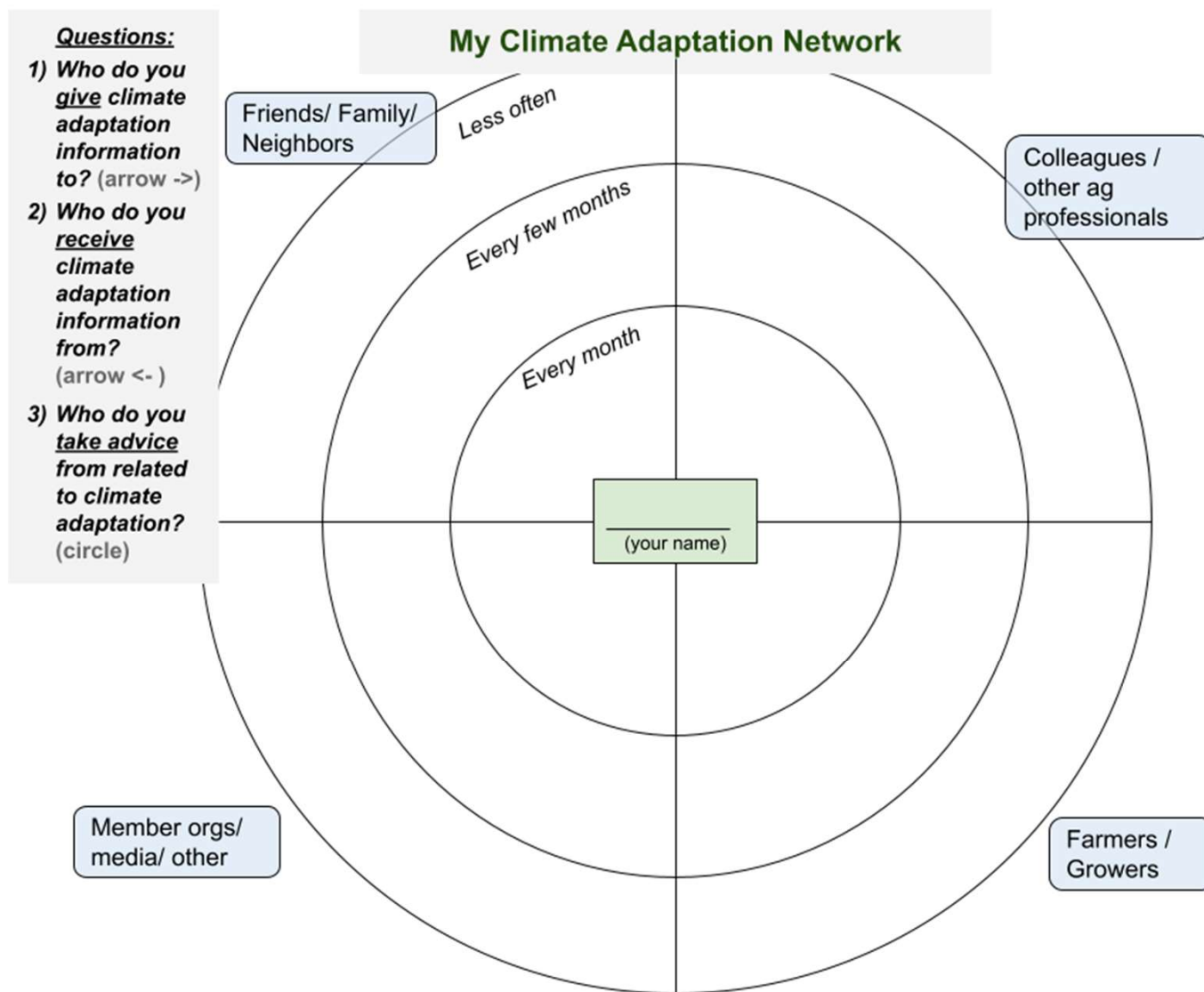
Hold on to that image

“Imagination Clouds #2” by
Pracha Yindee

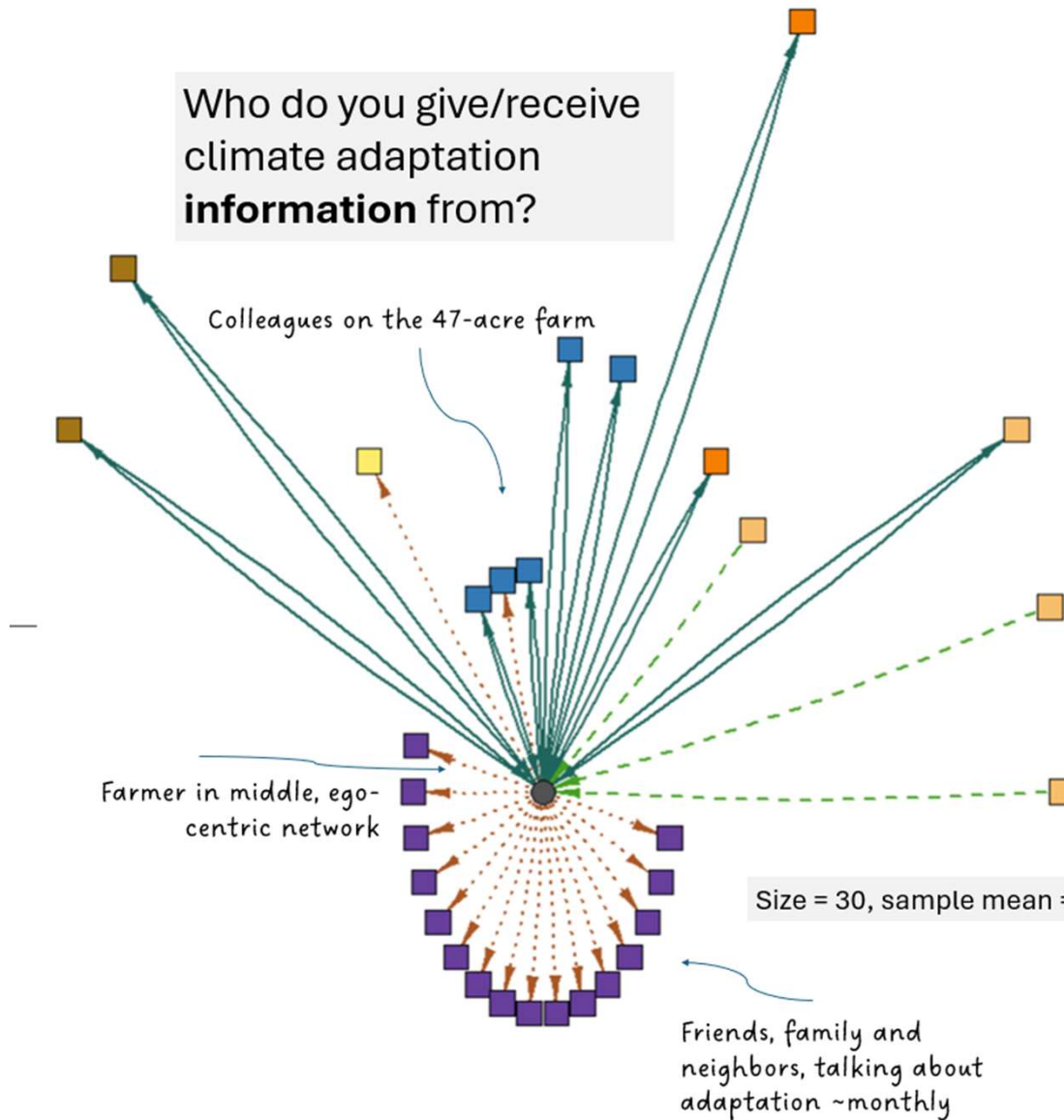
Research methods

1. Collected climate adaptation social network data from **eight farmers and seven advisors over two years.**
2. Added context with interviews and surveys.
3. Used Social Network Analysis (SNA) to analyze and illustrate.





Who do you give/receive
climate adaptation
information from?



Legend



Closer = more frequent contact



Who do you take climate adaptation **advice** from?

Advice rated 1-5, based
on how usable to farmer

Size = 5, sample mean = 15.8

Farmer starts taking advice from one colleague in 2024 interview

Taking advice from
advisors and
advising orgs

Legend

- 
- | |
|----------------------------|
| Farmers |
| Advisors |
| Advising Organization |
| Suppliers |
| Colleagues |
| Customers |
| Member Organizations |
| Member Listservs |
| Media |
| Events |
| Friends, Family, Community |
| Government |
| Lenders |

Closer = more frequent contact

- Incoming

Outgoing

Reciprocal

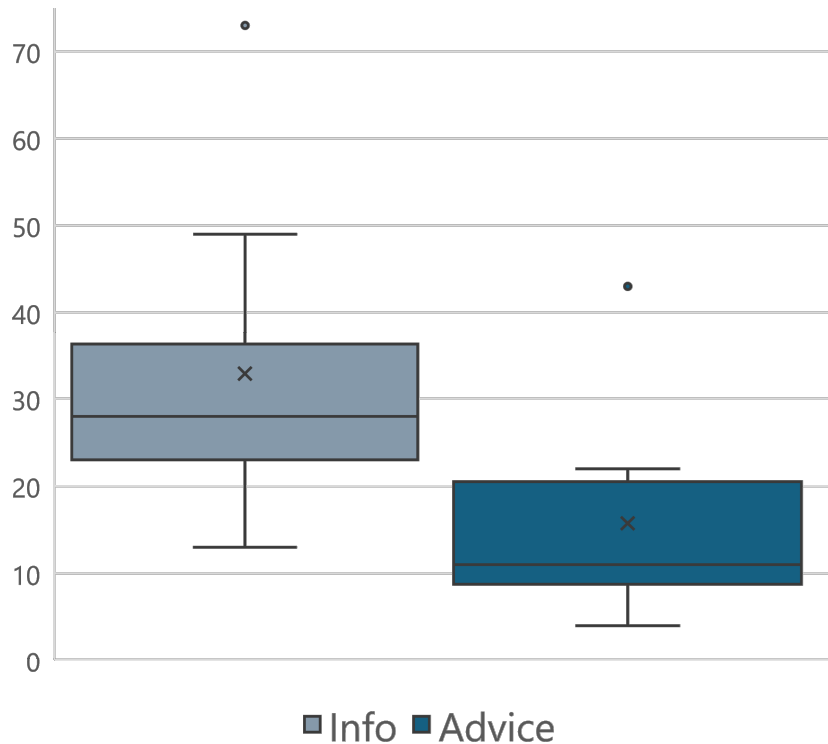
Thicker = more usable advice

Climate adaptation knowledge networks

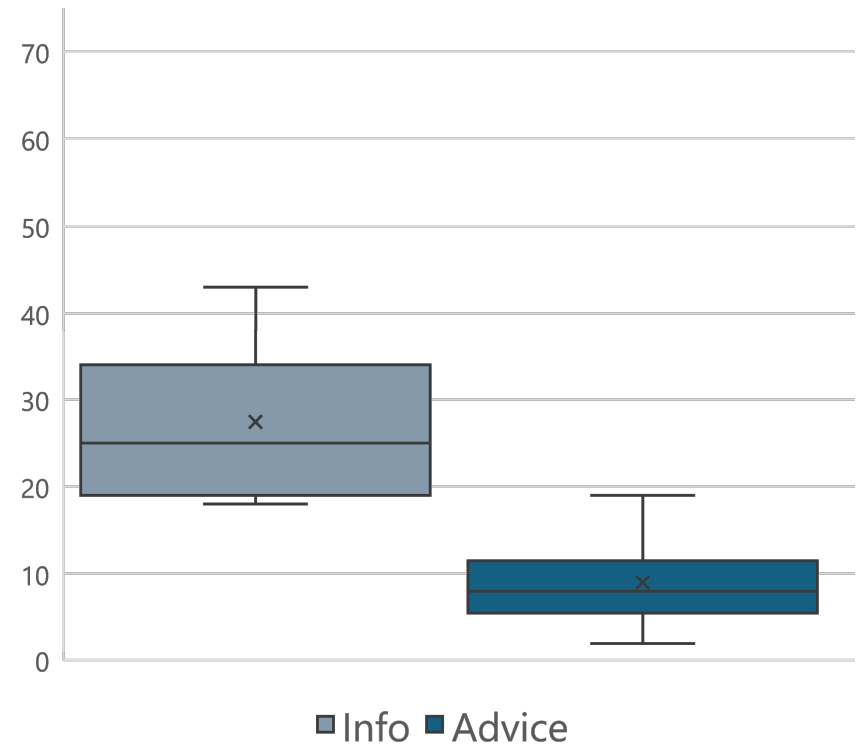
1) *Info*: Who do you give/receive climate adaptation information with?

2) *Advice*: Who do you take advice from?

Farmers, Size of Networks



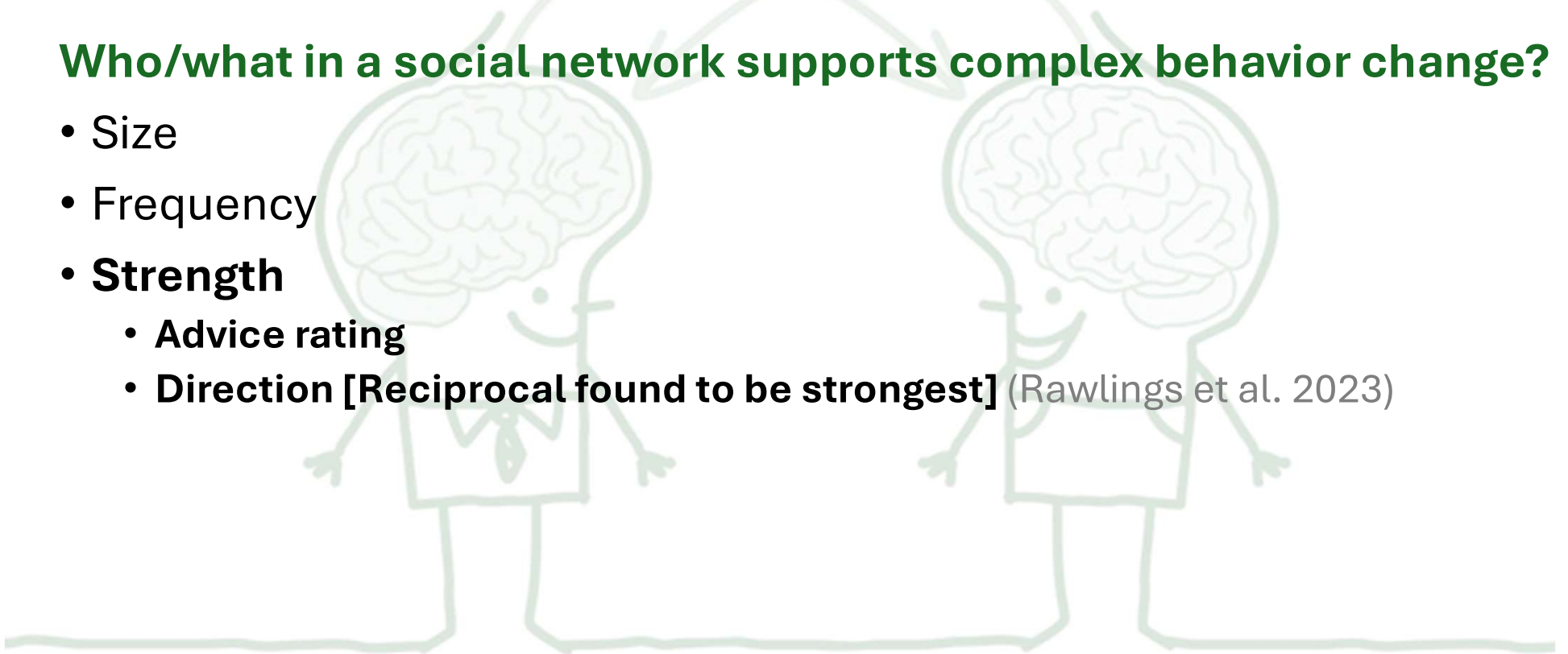
Advisors, Size of Networks



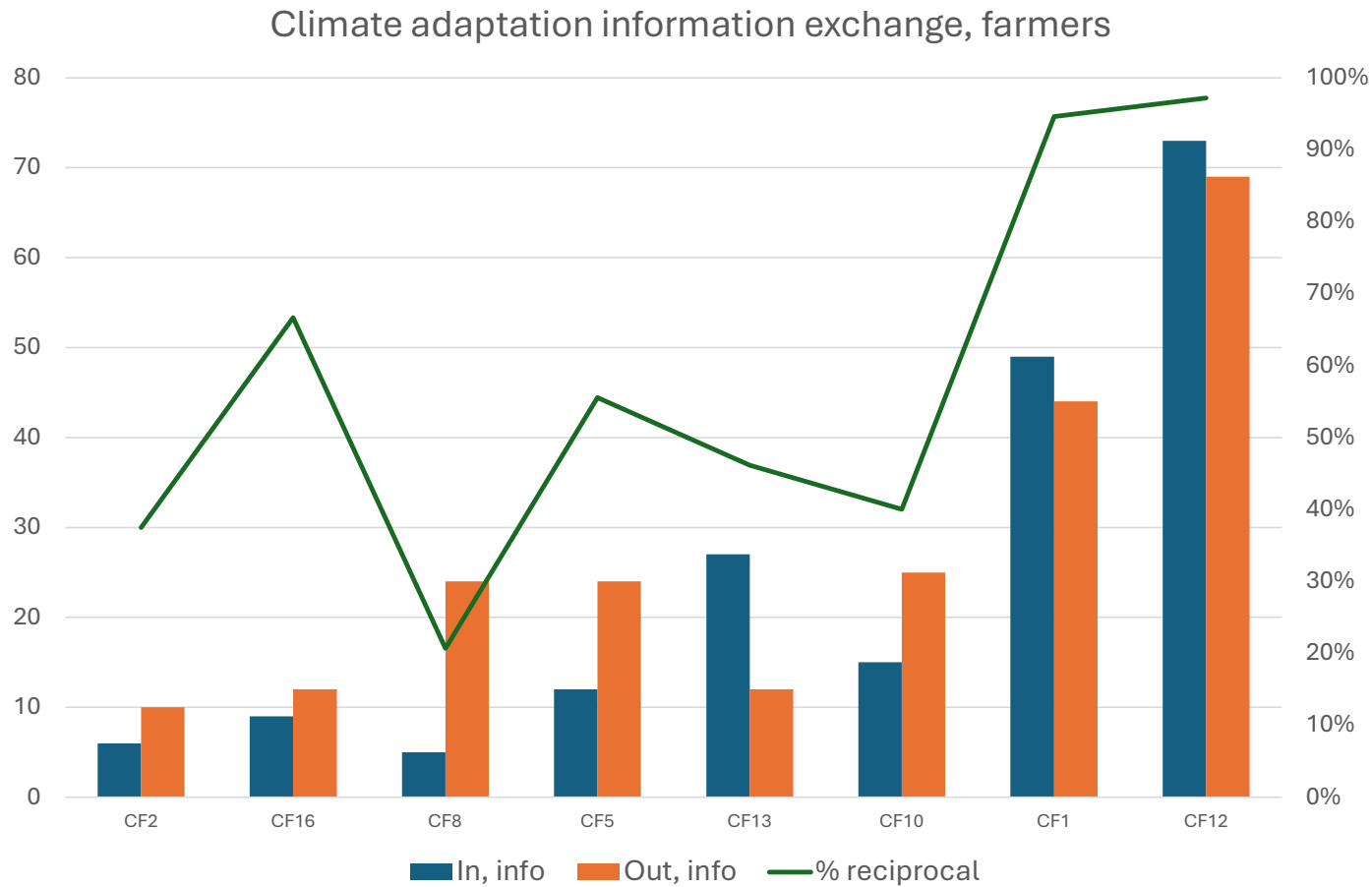
Reciprocal connections and behavior change

Who/what in a social network supports complex behavior change?

- Size
- Frequency
- **Strength**
 - Advice rating
 - **Direction [Reciprocal found to be strongest]** (Rawlings et al. 2023)

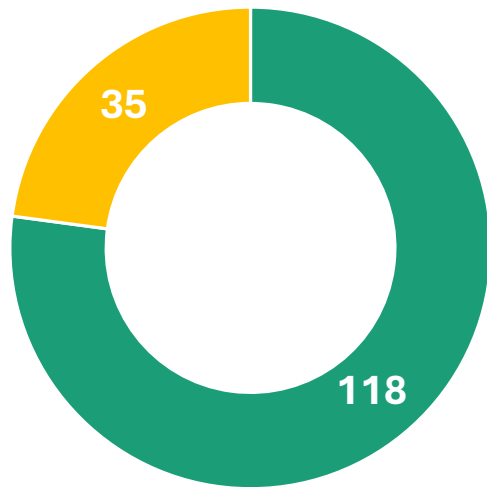


Reciprocal information exchange



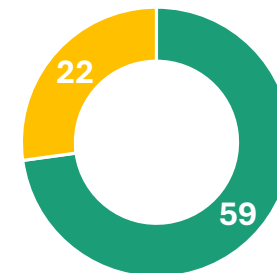
Reciprocal information and advice

Farmers reciprocal info sources



■ Same type ■ Different types

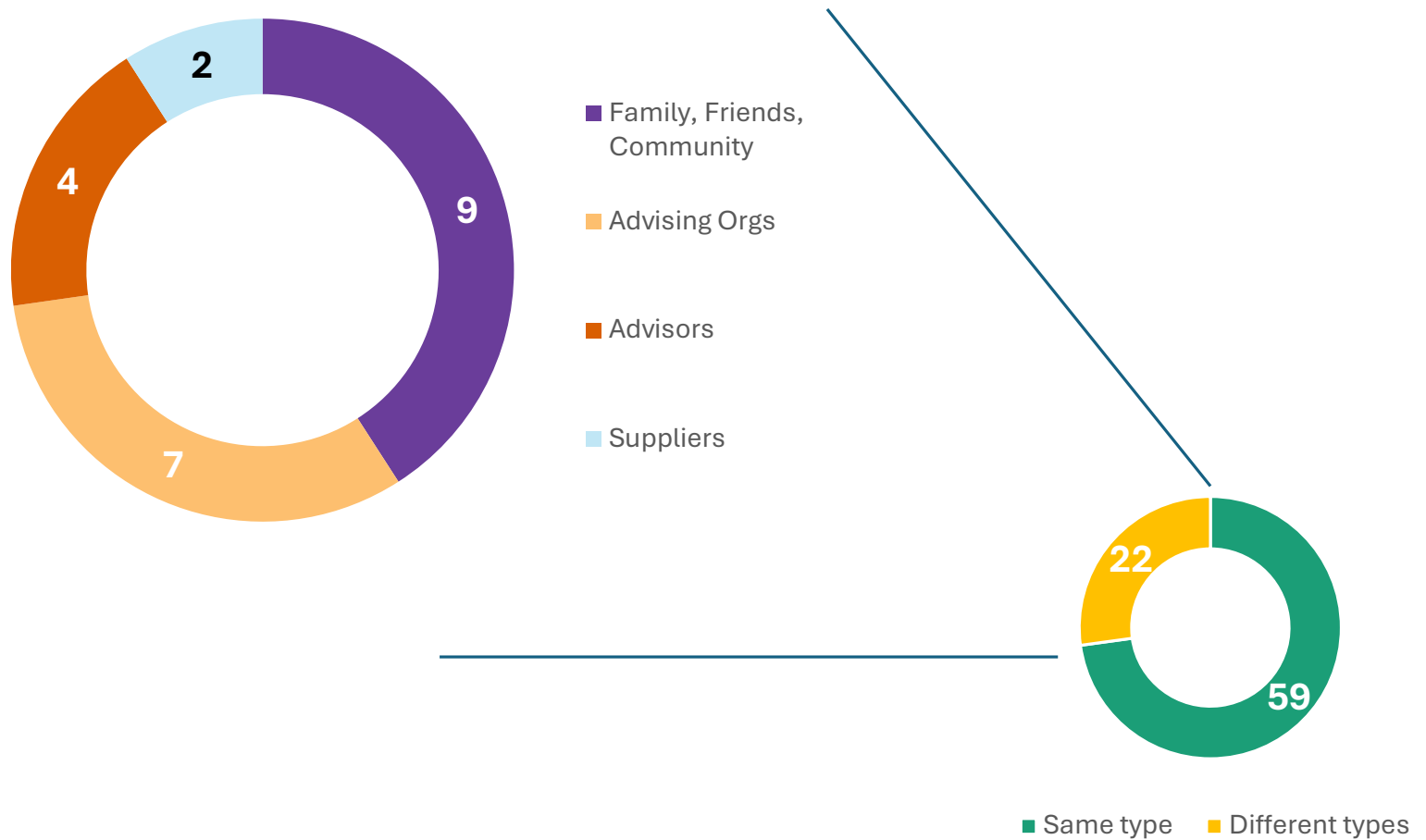
Farmers reciprocal "advisors"



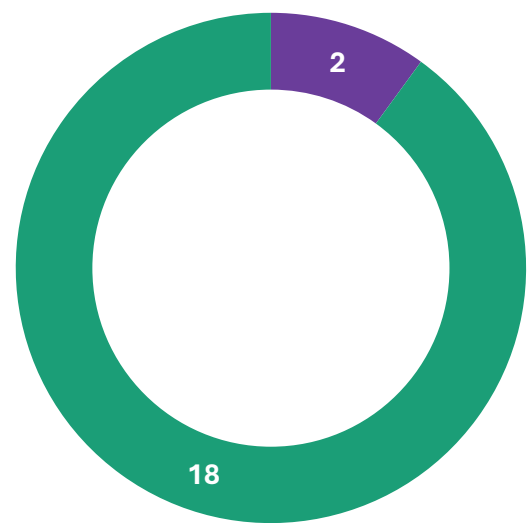
■ Same type ■ Different types

77% of reciprocal sources are other farmers

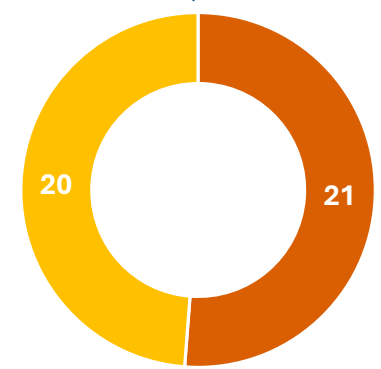
Farmers other reciprocal “advisors”



Advisors' reciprocal “advisors”



- Family, Friends, Community
- Farmer



- Same type
- Different types

Reciprocal relationships, are these peers?

Farmers and advisors exchange ideas and advice, collaborate

- Possibly the same as peer-to-peer learning?
- But...
 - Not all reciprocal advice is farmer-to-farmer or advisor-to-advisor.
- Should we rethink how we define “peer-to-peer”?
- **Farmer-to-farmer peer learning** is rarely defined in writing?

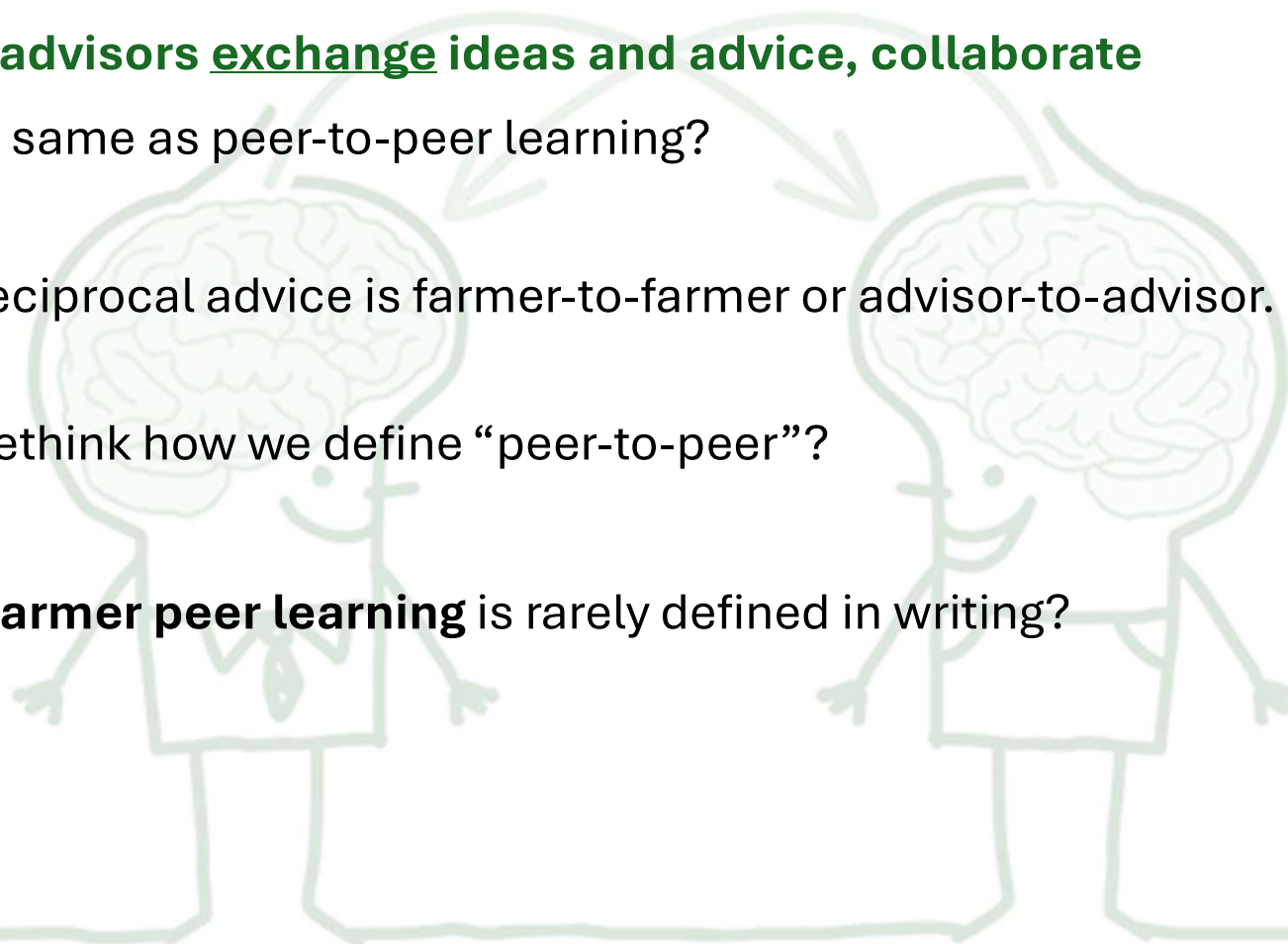


Image: [Fernandez 2017](#)

Defining “peers”

Peer:

“one that is equal to another in status, achievement or value”

(Mariam Webster online dictionary)

-> More than just same occupation



Defining “peers”

What does the study group say?



Farmer-to-farmer peers

Study farmers are specific about which other farmers are their peers:

Location: *"farms in the northeast, they're dealing with similar issues to us, and I think offer solutions"*

Crops: *"[Instagram] allows me to connect with other farmers that are similar in scale or crop or ethos. A lot of the farms in my area are larger veggie farms. I can find a lot of no-till farmers or, you know, perennial growers or herb farmers through social media"*

Size: *"I think that culturally, there's a big difference between a 10 to 15-acre certified organic farm that's farming on a 60-acre land base...versus an operation like ours that's larger in terms of crop acreage... larger and more complex in terms of the finances"*

Experience-level: *"I have to admit that I was such a new and small producer that I didn't see anyone who might be a peer to interact with."*

Approach: *"Well, conventional growers." I'm like 'Well, where do I fit?' I fancy myself as being a progressive grower incorporating all the practices, really subscribe to good stewardship of soil resources, but where do I fit, right? Sometimes I wonder-- I don't know if I know where I fit, but I know that the word conventional is not complimentary, right?"*

Political views: *"So -- it's hard to broach-- to have, you know, these more in-depth, other than just talking about the weather conversations with these [politically conservation] people that you run into. ...it's hard to get to know these people, and then, once you do get to know them, then you still have the hurdles of difference of politics and ideology."*

Problem-solving skills: *"A question is...where do they get their news and information from? Are they only listening to one source which is extreme? Or are they listening to several different sources and forming an opinion from there? You know, there are just some growers who are really good and astute. And, you know, you'll give them a '1'."*

Beyond farmer-to-farmer peers

Reciprocal, “peer” relationships can be created through: *(from interviews)*

- Long-term relationship
- Shared approach or objectives
- Respect for each others' knowledge, experience, skills
- Finding others' ideas to be specific, solutions-based, relevant, accessible
- Belief that they are unbiased or scientific
- Openness to share



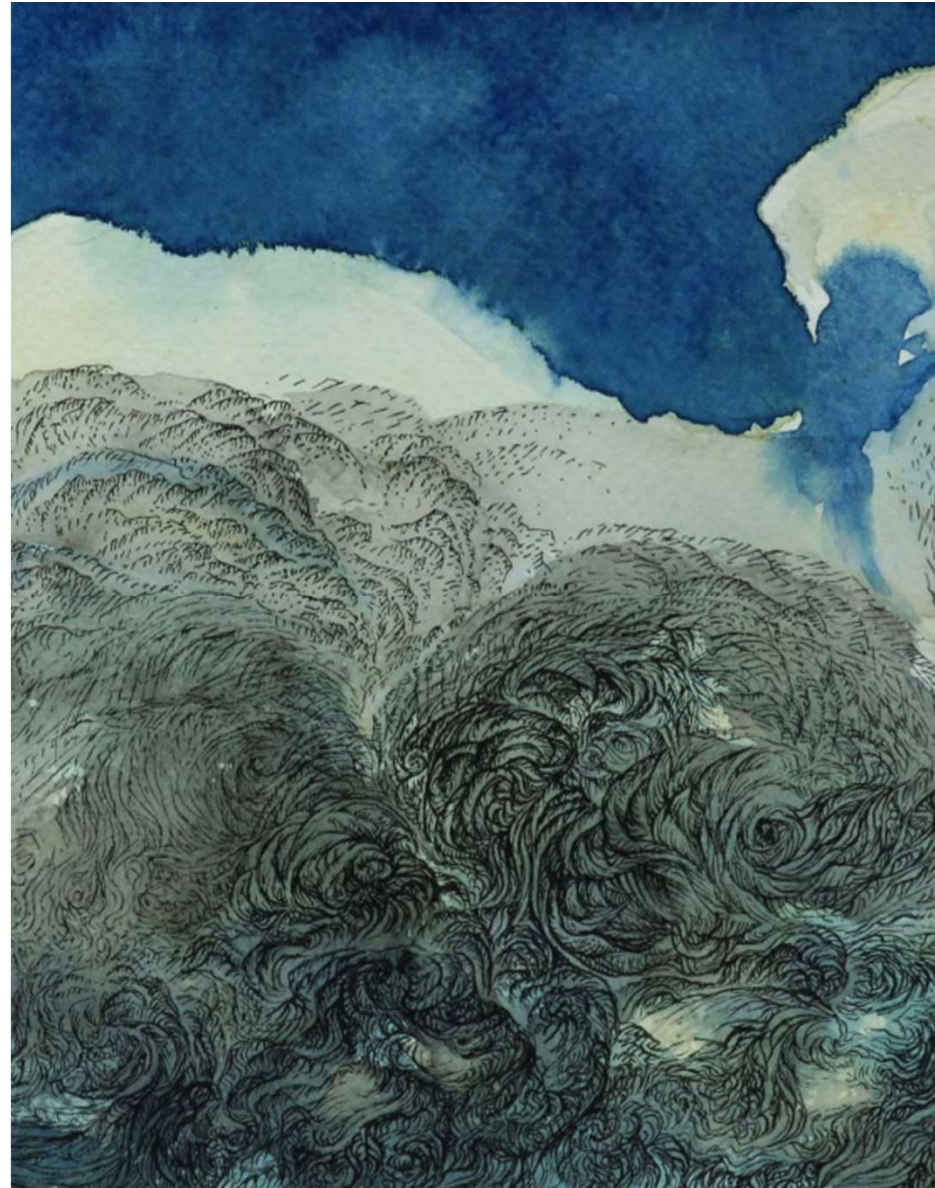
Do these overlap with the qualities of the person you pictured earlier?

Coming back to finding a definition of a peer –

Fellows in this study paint a many layered picture of who they have back-and-forth “peer” relationships with.

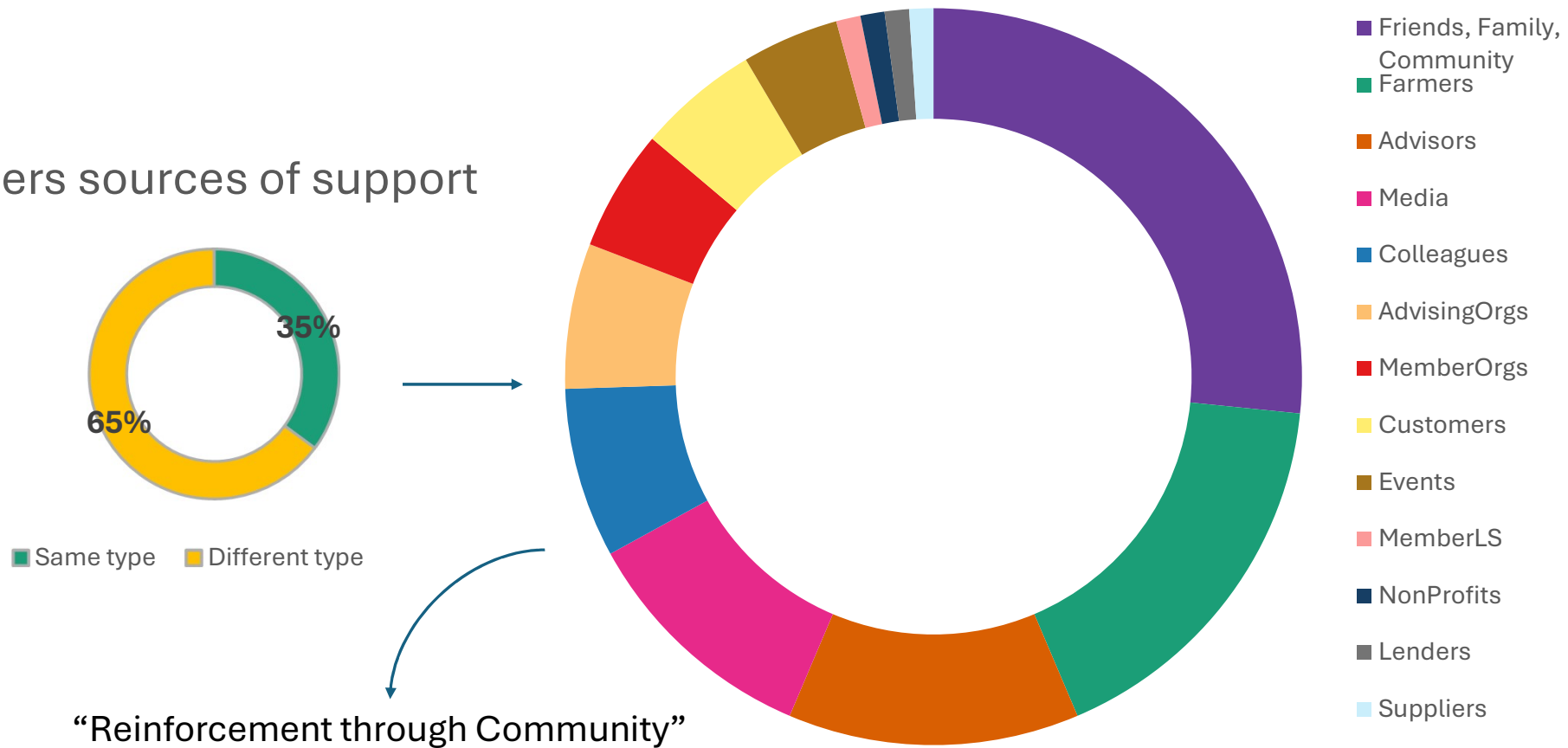
These connections give highly “usable” advice (interview data), persist over time (literature, interview data), and if clustered together can reinforce new complex behavior (literature).

→ This is one important element in how networks support climate adaptation behavior



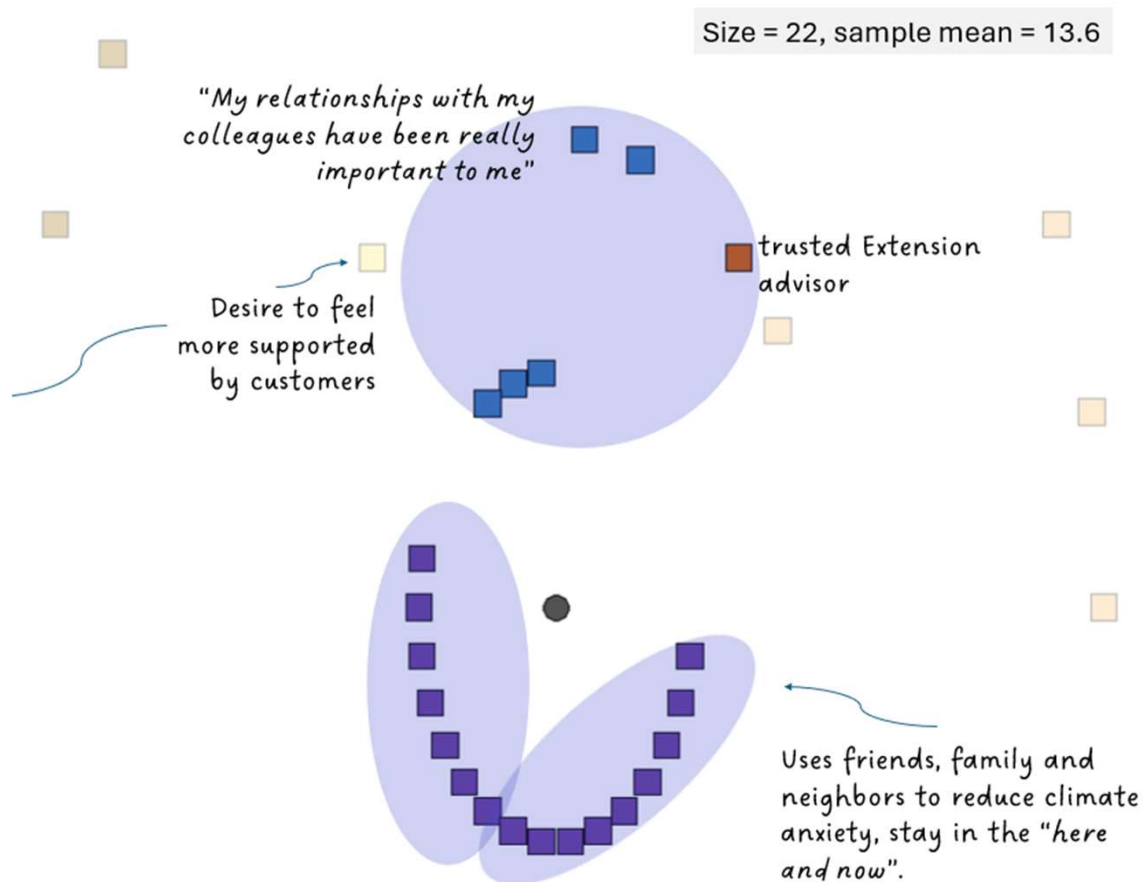
Support – who keeps you going in your adaptation efforts?

Farmers sources of support



Who **keeps you going** with your adaptation work?

Purple shading = support



What is the key takeaway(s) for the audience in advancing conservation efforts?

- Who a farmer considers a "peer" is nuanced, specific
- Peers for farmers may include professional advisors, friends, family
- Reciprocity is gained in different ways, including longer relationships, similarity in approach, and respect for each other's expertise, or problem-solving skills.
- If clustered together peers can reinforce new complex behavior.
- Support comes from community more widely

What is one thing you would do differently in the work you just presented?

- Consult with research end-users to collaboratively generate research questions before beginning research.

What is one recommendation you would have for someone who is trying to do something similar in the conservation field?

Think carefully about who to include in farmer-to-farmer “peer” programming

Broaden your attention beyond 1:1 peer learning, and even beyond farmer groups. Think about the qualities of the advisor you imagined...?

[from Linda and Hannah, women storytellers in Iowa “can have others in their decision-making circle at the event]

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From farmer peers to.....reciprocal peers?

If not all other farmers are peers, who is, and how do they influence adaptation?

DS0

Previous research points to the importance of reciprocity in behavior change:

- Only reciprocal networks of influence had significant association with climate change perceptions (Theodoro et al. 2021)
- In Social Network Analysis reciprocation and multiplexity (i.e colleague AND friend) are used as indicators of strong ties. We want to be around those that respond to us, and so those relationships last. (Rawlings et al. 2023)
- Multiple trusted reinforcing connections are needed for more complex behavior change (Centola 2018)

This research shows that:

- Both farmers and advisors can describe the advantage of reciprocal relationships, using words like: collaborative, horizontal, back-and-forth...
- Not always equal reciprocity, but *some* is important
- Advice from reciprocal relations rated as more usable (1-5 scale)

→ reciprocal relationships a useful indication of *influential peers*

DS0

Jamie: Yes. Some of them get very good advice. I mean, one guy who I know works for one of those companies, he's a part-time grower, too. And he grows the same crop that we grow. So, you know, although he's selling, I'll say what are you using for this? And he said, "Well, this is what I'm using in mine. And this is what the effect it has." I'm like well it carries more relevance then because he's doing it. And I know, you know, not just professionally. But anyway it's just, you know, it's like how you weight your advice.

Delaney, Sara, 2024-08-18T20:26:31.311

- Paper about how a participatory approach failed because all of the model farms were big, and the other farmers didn't see them as peers – Latvia! Animal husbandry (Adamsone-Fiskovica & Grivins 2022)

Combinations of bonding, bridging, and linking social capital for farm innovation: How farmers configure different support networks
Gabriela Cofré-Bravo, Laurens Klerkx, Alejandra Engler