

Ethics, Diversity & Inclusivity in AG2P Research: Design Thinking

Community Workshop – AG2PI Seed Grant, 2022

Presented by the Public Science Collaborative, Iowa State University, USA.





Human Centered Design

These personas, or ideal-type identities, that represent well-networked and central researchers to AG2PI, as well as the marginalized and less connected stakeholders, and the external groups that benefit from this work



Breakout Room Example

Scientist Susan





Scientist Susan

Research Faculty

"My research improves farming by increasing resiliency. I just need funding to give me time to feed the world and end hunger."

SUMMARY

AGE

45 – 54 years

HIGHEST LEVEL OF EDUCATION

Doctorate (eg. PhD, EdD)

INDUSTRY

Research University, Agriculture

ORGANIZATION SIZE

1001 – 5000 employees

PREFERRED METHODS OF COMMUNICATION

- Email
- Phone
- Face-to-Face
- Zoom

INFLUENCERS

Gains information by reviewing scientific journals, attending conferences and workshops, collecting field data, analyzing data, research collaborations.

Strongly influenced by leading scientists and research organizations

MEDIA

Social Networks



JOB ROLE / PRIORITIES

RESEARCH FACULTY

- Goals are to make plants and animals resilient. Provide ethical outcomes to investigations. Improve breeds for future farming. Develop innovations that lead to profitable patents
- Output includes research papers, data, and presentations - summaries for funders
- Job success is measured by publications, citations, patents, exciting discoveries, reputation, making plants and animals resilient
- Susan reports to: Chair of Department, Dean, University Administration

KEY MOTIVATING FACTORS

PASSION POINTS

- Passion to do good science and get her job
- Interested in latest breakthroughs in phenomics/genomics
- Well compensated for effort
- Respect amongst scientific colleagues
- Prospect of discovery: Solve complex problems & participate in exciting discoveries

PAIN POINTS

- Maintaining funding
- Time
- Connect her lab and work with other research programs
- Recruiting and funding high quality grad students and postdocs
- Navigating stakeholder relationships
- Project management & disorganization
- Juggling the diverse tasks of being a research faculty, especially teaching



Think & Feel

- Feels like she has to prove herself all the time - This can be exhausting physically and mentally
- Loves it when someone stumps her with a viewpoint she hadn't considered before - and is excited to see how that viewpoint could help her answer deep questions and contribute to research
- Feels invisible when some colleagues somehow seem to dominate a full conversation without noticing her efforts to join
- Feels like she is flying when she makes a discovery that adds insight to the field
- Is motivated by success and also by failure - try and try again!

See

- Doesn't see a lot of people who look like her in her meetings.
- Notices when grad students or new faculty hesitate to contribute in meetings
- Sees connections that many people miss and has the ability to narrow down what she sees to the core question that will make it reveal insight

Hear

- Listening to her subordinates tell her she's the best boss they've ever had
- Sometimes hears colleagues checking with males at the table before including her
- Hears people assume she cannot follow a conversation in English, thereby talking over her or ignoring her

Say & Do

- Reaches out to colleagues to congratulate them on their achievements
- Attends every conference she can to network in her field
- Agrees to co-author with new scientists to help mentor them
- Is inclusive of other viewpoints
- Shares and encourage others to discuss their failures - it is part of growing knowledge to not always follow a path that leads to success, but sharing the process and the results can help others to not make the same mistakes and is also the ethical approach that encourages truthful transparency from herself and her team.

Pain

- Maintaining funding
- Time
- Connect her lab and work with other research programs
- Recruiting and funding high quality grad students and postdocs
- Navigating stakeholder relationships
- Project management & disorganization
- Juggling the diverse tasks of being a research faculty, especially teaching

Gain

- Passion to do good science and get her job
- Interested in latest breakthroughs in phenomics/genomics
- Well compensated for effort
- Respect amongst scientific colleagues
- Prospect of discovery: Solve complex problems & participate in exciting discoveries



Empathy Map – Scientist Susan



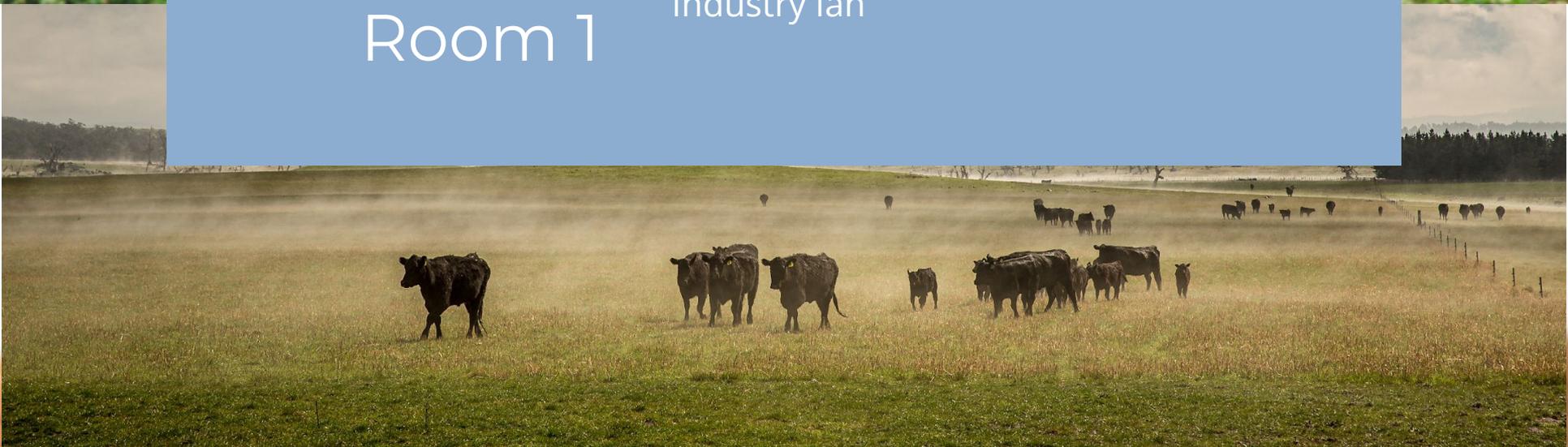
Journey M — Scientist Susan

Touchpoint	Pre-Engagement	Engagement	Post-Engagement
How do they first discover the existence of AG2PI & what are they looking for?	<p>Listserve email about events taking place</p> <p>Hope that someone, somewhere has information and will Google it</p> <p>Finding Likeminded researchers</p> <p>Looking for funding</p> <p>Expanding on their topics of interest</p> <p>Answers to questions of "How have others dealt with USDA?"</p>	<p>Boring emails that get buried in lost</p> <p>Contacting faculty that are involved in their institution</p> <p>Happy to discover that there is a group focusing on what she is looking for</p> <p>Time conflict, no easily accessible link to more information if you can't make the meeting</p> <p>Connections and contacts with other research faculty</p> <p>New ideas</p> <p>Website for AG2PI that is loaded with details</p>	<p>Talk to co-workers about it</p> <p>Feel disappointed that she didn't know about it earlier</p> <p>Feels great that there is a place with "her kind of researchers" getting together regularly.</p> <p>Looking forward to adding further interactions to her calendar</p> <p>Assessment of if they actually found what they were looking for, and positive or negative feelings associated with if they found it</p> <p>Interest in future involvement / engagement</p> <p>Tired of typing and overwhelmed by details on the website</p> <p>Excited and inspired by all the overwhelming details on website</p>
How do they stay in contact with AG2PI	<p>Looking for listserve to join</p> <p>Looking into resources related to their research</p> <p>Finding contact information to start reaching out</p> <p>Email</p> <p>Phone</p> <p>Listserve</p> <p>Reading about events that will happen soon</p>	<p>Signing up for list serves</p> <p>Email / calling PIs or admin support people</p> <p>Setting up the actual interaction is an interaction in itself – and can be positive or negative based on how easy it is to achieve</p> <p>Attending workshops/events</p> <p>Making phone calls</p> <p>Reading emails – need to keep them engaging or at this point Susan will let emails float down to junk status</p> <p>Feel like a part of the team when reading from listserve</p> <p>Learning about the others in the group</p>	<p>Excited to have a contact</p> <p>Hopeful</p> <p>Worried things won't pan out</p> <p>Afraid that she might have to share IP and credit stealing for her ideas?</p> <p>Excited about finding likeminded researchers and colleagues to stay in contact with them</p> <p>Overwhelmed by so many options that maybe doesn't get targeted enough information JUST for her interests.</p>
How do they get information from AG2PI & learn of new activities or opportunities	<p>Signing up for listserve, and Twitter</p> <p>Researching research topics of interest</p> <p>Talking with colleagues</p> <p>Cautious – not sure what to expect</p> <p>Ask Colleagues – have you heard of these guys? Do they know what they are doing?</p> <p>Signing up for listserve</p> <p>Signing up for updates via email</p> <p>Researching upcoming opportunities</p>	<p>Attending a workshop/meeting</p> <p>Contributing to research/discussion/dialogue</p> <p>Talking with leadership/other attendees</p> <p>Reaching out for more information</p> <p>Talking with other involved colleagues</p> <p>Receiving updates via email or listserve</p> <p>Signing up for future updates/information</p> <p>Set aside email reading time in her day to review all emails, AG2PI is one of hundreds, so how to make it stand out is how she decides whether to open the email or not</p>	<p>Utilize contact information from workshop</p> <p>Staying up to date on opportunities via website</p> <p>Excited about information out there, overwhelmed by the volume</p> <p>Still has a lot of questions and might want to set up further contact</p> <p>Reassured – feels better about AG2PI and feels more informed</p> <p>Skeptical but optimistic about future outcomes – being how their success will be</p> <p>Disappointed with lack of opportunity</p> <p>Frustrated their schedule doesn't allow involvement</p> <p>Don't get involved, too much on their plate, but thankful that AG2PI is there and working right now (might be able to do more with them in the future)</p> <p>Too many emails, TLDR</p> <p>Excited about upcoming opportunities</p>
How can they share their expertise with AG2PI	<p>Signing up for listserve, emails</p> <p>Researching interests of AG2PI</p> <p>Finding contact information</p>	<p>Responding to or sharing information via email or phone</p> <p>Sharing during activities/meetings</p> <p>Talking with leaders/colleagues</p>	<p>Excited to have contributed, people with shared interests</p> <p>Disappointed at lack of opportunity to share</p> <p>Feeling valued because of contribution</p>
What is defined as a successful interaction	<p>Ease of access to information about interaction</p> <p>Steps provided to prepare for interaction</p>	<p>Knowledge of goals and plans during interaction</p> <p>Clear communication</p> <p>Positive feelings throughout interaction</p>	<p>Reflect positively on productiveness</p> <p>Excited for next interaction</p> <p>Feel like they made an important contribution</p>



Breakout Room 1

Industry lan





Industry Ian

Representing Ag Interests

“Washington folks need people like me to connect them to real agriculture interests for future-forward and profitable policy making.”

SUMMARY

AGE

35 – 44 years

HIGHEST LEVEL OF EDUCATION

Master degree in a STEM field from reputable land grant

INDUSTRY

Commodities

ORGANIZATION SIZE

501 – 1000 employees

PREFERRED METHODS OF COMMUNICATION

- Phone
- Face-to-Face
- Text Messaging; Slack
- Social Media

INFLUENCERS

- Gains information from proprietary business reports & publicly released data from government sources and university research
- Competitor firms
- Wall Street Journal

MEDIA

Social Networks



JOB ROLE / PRIORITIES

CONSULTING ON AGRICULTURAL INTERESTS

- Goals include representing commodities/farmers interests in Washington DC.
- Provide funds for projects to develop new varieties or products – usually industry-specific.
- Dealing with immigration issues - where is the labor?
- Job is measured by increasing their employer's influence on policy and ultimately the profitability of the sector
- Looking to partner with innovative academic scientists to capture profits flowing from innovation

KEY MOTIVATING FACTORS

PASSION POINTS

- Keeping costs low for agriculture production
- Increase profits
- Increase public support/trust in agriculture
- Increase general public's understanding of GMO production
- Influence policy

PAIN POINTS

- Navigating client relationships & communications
- Not enough resources to advance firm goals
- Identifying the right new ideas to fund
- How to keep costs down
- Look good (genomics)- get to market faster, sell more, make more money
- Public support
- Gap between industry group concerns and public interests/concerns



Think & Feel

- Frustration! Having to deal with people who do not understand the science.
-
- Regrets - leaving academic pursuits due to financial or academic concerns feels the weight of the company on his shoulders.
-
- Worries about negative connections.
-
-
-
-
-
-

See

- See others as competition rather than collaboration
-
- Offices
-
- See people making wild statements with no backing of data
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-
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-

Hear

- People hear him and his words carry the weight of the entire industry in them.
-
-
-
- Have to be careful of the politics of why and how things are said.
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Say & Do

- Visiting with legislators
- People on the hill are stupid/ignorant/ trying to make scientific concepts easier for those without training.
- Learning how to communicate with people who are not scientists
- And people who are actively anti-science
-
- Must deal with a variety of different degree holders or not degree holders - translational concepts
- Communicating across disciplines with people of different backgrounds.
-
- Having to keep information private - not transparent
-
-
-
-
-
-

Pain



- Keeping costs low for agriculture production
- Increase profits
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- Increase general public's understanding of GMO production
- Influence policy

Gain



- Navigating client relationships & communications
- Not enough resources to advance firm goals
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- Look good (genomics)- get to market faster, sell more, make more money
- Public support
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Empathy Map – Industry Ian

Touchpoint	Pre-Engagement	Engagement	Post-Engagement
How do they first discover the existence of AG2PI & what are they looking for?	Shilling/representing for his company at a conference and wondering around & finds a booth LinkedIn - read a white paper Google search terms for ag Email sent out from related group Listserve	LinkedIn - read a white paper Finds website full of fabulous information Attends a field day or workshop Great online - can listen to see if it is useful for him (primary action)	Asks his boss if he can attend more workshops if it is during worktime Reflects on how to leverage this knowledge of AG2PI - is he going to listen or input? How can we make money on this?
How do they stay in contact with AG2PI	Looks for a mailing list to join Frustrated by inability to do certain things because of the limitations of proprietary data, protecting IP	Joins a mailing list Inherent conflict between transparency and IP. May need mediation of Sponsored Programs to make the academic/industry partnership. Funding for research but.....private industry profit focus.	Actually reads the emails and hopefully does not leave them unread. Feels inspired by the work he sees and wants to connect Looking to volunteer to put a presentation together for industry showcase or collaborations. Feel excited that what they are doing getting put to use and to advance science. Professionally rewarding to see their work being used and has an impact on the world!
How do they get information from AG2PI & learn of new activities or opportunities	Email lists passively passing through Thinking about following on Twitter	Follow on Twitter Review calendar on website and see if there is something that he should be paying attention to. Great to remind people because email might be forgotten.	Planning his time to be available for AG2PI events
How can they share information with/to AG2PI	Is it information or selling? Nicole through emails, knows from emails, wouldn't look on the website to find.	Emails Nicole. "Hey I saw this thing, can you post it to the group" Fill in AG2PI community surveys and get their ideas heard.	Feels great that he just checked something off his list and gets to move onto the next thing! Feels great that he is helping shape the research agenda and hoping to shape how NIFA allocates
What is defined as a successful interaction	Feeling prepared for workshop and knowing how to gather details. Ready to Learn	Participating in sessions that he gets to share his viewpoint from Finding it useful! Didn't waste his time by joining!	Can now take information and actually help change minds and focus attention in Washington and in his specific industry.

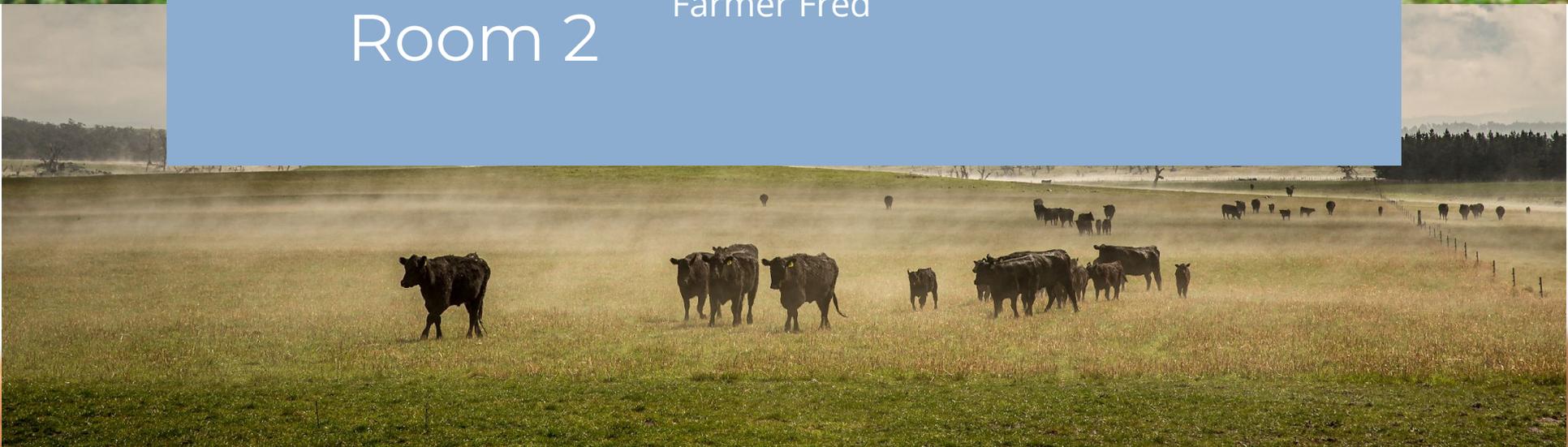


Journey Map — Industry Plan



Breakout Room 2

Farmer Fred





Farmer Fred

Family Farmer

"I know farming. What I want to know is how you plan to help me keep farming into the future."

SUMMARY

AGE

55 -64 Years

HIGHEST LEVEL OF EDUCATION

Some college, no degree

INDUSTRY

Agriculture

ORGANIZATION SIZE

Self-employed

PREFERRED METHOD OF COMMUNICATION

Face-to-Face

INFLUENCERS

- Farmer Fred gains information through consulting with family members & other farmers
- Reads agribusiness reports & trade magazines
- Extension officers
- Agriculture sales reps

MEDIA

Social Networks



JOB ROLE / PRIORITIES

FARMER

- Wants to continue to commit his time, efforts, and energy to the farm
- Goal for working with AG2PI is to maintain his position as an early adopter of emerging technologies
- Efficiency and profitability of the farm
- Wants to know more about how advanced technology can improve his farm operations, but worries about rising costs
- Job is measured by acres tilled, tonnage harvested, and legacy

KEY MOTIVATING FACTORS

PASSION POINTS

- Passionate about his farming operation and the future of farming
- Also passionate about the past, ancestors and long-term local residents, family and townspeople, who have been through the same experiences, sharing resources when needed, community working together after floods, draughts, and wildfires
- Highly knowledgeable about local weather and weather patterns
- Training people especially family members to continue the legacy of being a farmer on this land

PAIN POINTS

- Rising costs of technology
- Scarcity of reliable labor
- Adaptation to changing climate and water scarcity
- Environmental harms of his farm operation
- Increasingly technical requirements of modern agriculture
- Who will take over the farm when he retires?

Think & Feel

- Worried about the future (self, family, farm, community)
- Anxiety about political impacts on farming.
- Anxious about how to stay profitable
-
- Committed to their community & neighbors
- Passionate about the future of farming
-
- Pressure to adopt the next technology and “keep up with the jones”
- Worries about the next pest outbreak and herbicide resistant weed
-
- Proud of their work
-

See

- Less farmers and family owned farms.
- Farms getting larger and larger
- A climate that is changing
-
- Rapid technological advancements.
- Climate whiplash.
-
- Less control over what he owns, such as farm equipment locked by manufacturers.
- Farming technologies getting more expensive and more complex
- Fewer farmers...older as a group
-
-
-
-

Hear

- “Wow, the weather this year is strange” (climate change)
- “The government is dumping water in the ocean.”
-
- Promises from politicians for more relief, protections from big industry moving in
-
- Neighbors are using more advanced techniques.
-
- From extension office how to follow new policies, regulations, implement new techniques.
- Trade magazines are projecting rising input costs (herbicides, fertilizers, etc)
-
-
-
-

Say & Do

- Talks with neighbors and community members about news, concerns, favorite stories
- Probably lived in same community all their life
-
- Help neighbor harvest their crop
- Planting new varieties, hoping for a bumper crop
- Evaluate different seeds/varieties and treatments each year (???I'm guessing here)
-
- May choose who to vote for and support based on farm/agricultural policies
-
- Following land.
-
- Receiving offers for companies to purchase or lease his land.
-

Pain

- Rising costs of technology
- Scarcity of reliable labor
- Adaptation to changing climate and water scarcity
- Environmental harms of his farm operation
- Increasingly technical requirements of modern agriculture
- Who will take over the farm when he retires?

Gain

- Passionate about his farming operation and the future of farming
- Also passionate about the past, ancestors and long-term local residents, family and townspeople, who have been through the same experiences, sharing resources when needed, community working together after floods, draughts, and wildfires
- Highly knowledgeable about local weather and weather patterns
- Training people especially family members to continue the legacy of being a farmer on this land



Empathy Map – Farmer Fred



Journey Map – Farmer Fred

Touchpoint	Pre-Engagement	Engagement	Post-Engagement
How do they first discover the existence of AG2PI & what are they looking for?	Vendors and trade shows Trade magazines Seed sellers Other farmers Radio show Personal network	Lower costs More resilient crops and livestock Higher profits A more sustainable operation	Other farmers Sales representatives Join a research network by adopting on field sensors Provide feedback with the wallet...buy (or not buying) new products and services
How do they stay in contact with AG2PI	Sales rep Extension officer Intern/student	Test plots Talk to an extension officer Facebook Mailer (paper and digital)	No idea Tell other farmers what works and what doesn't Email a lab or research group
How do they get information from AG2PI & learn of new activities or opportunities	Word of mouth Industry sales rep Extension/outreach presentations Ads in trade magazines?	Facebook events/posts Training Signing up for a mailing list Field days hosted by industry/Extension	News about a new publication in Science/Nature (if they can access it) Press releases Through a community of practice network
How can they share information with/to AG2PI	Extension office? No central feedback system at present Word of mouth Fill out a form on the AG2PI website.	Feels distanced by research and technical jargon. AG2P website doesn't have a clear (or any) section for farmers.	Feels left out because there is no way to lead/shape research interests. Need more ways for farmers/growers to share feedback to APGP researcher network
What is defined as a successful interaction	Answered a survey? :-] Able to easily locate information Know which technologies to adopt, given their farm operation circumstances	Participated in follow up interview? Product/service works as intended and produced desired results Able to choose how to participate and volunteer for more interactions. Understanding and control over how their data is shared and with whom.	Using a new AG2P product/service that improves the farm operation (more sustainable, resilient, etc) Would like better access to research results. No way to access to data about them and their farm collected by AG2PI.



Breakout Room 3

Government Gloria





Government Gloria

Director

“I don’t have time to do this research myself, so show me clearly why you need these funds, and what you can achieve.”

SUMMARY

AGE

35 - 44 years

HIGHEST LEVEL OF EDUCATION

Master’s Degree (eg. MA, MS)

INDUSTRY

Government

ORGANIZATION SIZE

10,000+ employees

PREFERRED METHODS OF COMMUNICATION

- Email
- Phone

INFLUENCERS

- Gains information by reviewing reports provided to them by their programs; from government agenda and priority notifications
- Institutional knowledge sources
- Other directors
- Professional conferences

MEDIA

Social Networks



JOB ROLE / PRIORITIES

DIRECTOR OF PROGRAM

- Reports to State and Federal Government and Agencies
- Distribution of funds for programs
- Policy development or advisement
- Ensure federal funds advance science and align with executive objectives
- Communicating between science community and decision-makers
- Job is measured by Federal or State Appropriations, Profitability - Return on Investment, Positive PR regarding their projects / news reports

KEY MOTIVATING FACTORS

PASSION POINTS

- Passionate about responsibility to shape policies and programs to align with big picture interest of the government
- Desire for USA to be the leader of cutting edge research & programs worldwide
- Passionate about using science to achieve end goals – needs simple and effective graphics to communicate science succinctly

PAIN POINTS

- Limited Scientific Background
- Navigating Client Relationships & Communications
- Resource Allocation & Appropriation
- Change Management
- Employee Morale
- Communication
- Project Management & Disorganization



Think & Feel

- I love the opportunity to make significant change!
- Unfunded mandates are really stressful
- I am not useful for the world that I have some opportunities such as money to fund the project
- Which idea or project is fundamental, I am worried to decided?
- Stressed because they don't understand all of the science- they can't know everything! Gloria needs some high level information to understand what we are doing (or their aide). Need someone to give them something brief that helps them understand complex issues.
-
- Pressure to perform- they want to be successful for their boss
-
-
-

See

- Scientific advancement is critical for success
-
- Seeing colleagues who are successful in their investments and projects & wants to keep up!
- Lots of meetings with different people (how you decide what is important to follow up on)
-
-
- Seeing results of the projects they fund and they are positive and negative
-
-

Hear

- You should find more good project to fund
- You should be aware of current improvement of agriculture.
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Say & Do

- This is a fundamental project and I want to support that idea
- I am dependent to my boss, so I should not make mistakes.
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Pain

- Limited Scientific Background
- Navigating Client Relationships & Communications
- Resource Allocation & Appropriation
- Change Management
- Collaboration & Creativity
- Professional Development & Employee Morale
- Communication
- Project Management & Disorganization

Gain

- Passionate about responsibility to shape policies and programs to align with big picture interest of the government
- Desire for USA to be the leader of cutting edge research & programs worldwide
- Passionate about using science to achieve end goals – needs simple and effective graphics to communicate science succinctly



Empathy Map – Government Gloria



Journey M



Government Gloria

Touchpoint	Pre-Engagement	Engagement	Post-Engagement
How do they first discover the existence of AG2PI & what are they looking for?	-Google searches Peer networking Hear about this at a meeting and try later to follow up Reach out to current academic contacts to ask for advice	Boring emails that get buried in lost Visually boring, too long Can get lots of project ideas and sifting through can be difficult Contacting government that are involved in their project	-sending reports -Committee reporting - She feels good about having a partnership for consulting & support
How do they stay in contact with AG2PI	Email Phone Listserve Reading about events that will happen soon	Signing up for list serves Email / calling Pis or admin support people Setting up the actual interaction is an interaction in itself – and can be positive or negative based on how easy it is to achieve Attending workshops/events Making phone calls Reading emails – need to keep them engaging or at this point	Excited to have a contact Hopeful Worried things won't pan out
How do they get information from AG2PI & learn of new activities or opportunities	Listserve -Q: how to reach with workshop, field days, discoveries Website Present to committees-	Listserve- Email, Newsletter, Documentaries Short videos Workshops Field days	Share presentation Asking them to do presentations to scientists, find out what they want to hear and the science they are looking for (what direction should project go) Design Thinking - how to incorporate research into programs and policy
How can they share information with/to AG2PI	RFP Networking/matchmaking to connect Gloria to the right scientists Legislative days	Share data with AG2PI Website information- current events, grants, opportunities Networking Join a presentation- chance to engage with other stakeholders helps you feel like you belong & work moves forward	Research partners- publication Annual assessments, publications, white papers, research briefs, executive summaries Excited to have contributed, people with shared interests
What is defined as a successful interaction	When Gloria sends you an email back because she is interested in establishing communication	She liked it so much, we get funded again! Knowledge of goals and plans during interaction	Gloria provides additional funding for scholarships and related activities that build the field (when she sends the email, we celebrate)