

Appendix A. Question Bank

The following two tables (Table A-1 and Table A-2) encompass questions intended for this information collection. Questions from Table A-1 are demographic in nature and will be included on all information collections; questions in Table A-2 will vary across collections, depending on information needs. Response options cannot be identified prior to collection as they will vary for reasons such as differing cropping situations and pesticide types. No more than ten questions from Table A-2 will be included on any given information collection. All proposed questions will be supplied to OIRA prior to an information collection for their review.

Given unique production needs of different use sites, bracketed terms are used in the question bank to allow for flexibility in question design while still offering a structured bank from which questions may potentially be asked. The following provides an overview of these bracketed terms.

Explanation of Bracketed Terms Used in Question Banks

Production Areas

Agricultural System(s): In general, this will mostly be an indicator of the crop of interest. But because use patterns can entail non-crop or other outdoor agricultural sites, the ‘agricultural system’ designation allows for broader flexibility to address questions about non-typical use sites. Some examples of non-crop agricultural systems could include:

- Greenhouses or other non-outdoor systems: examples include hoop houses, slat houses, greenhouses, shade houses, high tunnels, hydroponic arrays, etc.
- Fields or other agricultural units (plots, strips, grids)
- ‘Horticultural-related area’ most often associated with ornamental production systems, for example outdoor arrays of pots that are treated by ground or chemigation
- Livestock feeding and/or housing premises, or other outdoor agricultural structures
- Aquaculture ponds or lakes
- Indoor growth media, including hydroponic systems and/or growth chambers
- Turf/golf courses
- Forests, tree nurseries, and tree plantations
- Other system that requires pest management

Seed characteristic: Referring to biological, physical or chemical traits of seeds commonly used in agriculture, that might be related to pest management considerations. Some examples for seeds include pelleted, coated, dyed, anti-feedant, growth additive, enhanced, certified, etc.

Production area(s)/specific location(s) in a production area(s): Area where a crop is grown, livestock are kept, etc., or a specific subset of these areas. Includes a wide variety of possibilities, as specific information on where a particular use is located may be needed. Some examples include field margin treatments, spot treatments, livestock house treatments around specific areas or apparatus, targeted spraying of particular production units, etc.

Geographic Area(s): Typically refers to geographic areas such as states, counties, crop reporting districts (CRDs), regions, watersheds, critical habitats or ranges of endangered species, or other political or physically bounded areas. May also refer to geographic areas that are identified by physical characteristics or proximity to a certain crop or area of importance, such as habitat defined by the presence of water or riparian areas.

Management/Practice

Agricultural Practice(s)/Task(s): This can refer to a broad variety of agricultural tasks that may or may not be directly related to a pesticide application but can be *impacted* by the requirements around a pesticide application. Some broad examples of agricultural practices include applying pesticides, mixing/loading pesticides, tilling land, moving irrigation pipe, training vines, pruning trees, scouting fields, harvesting fruits or vegetables, hand-thinning fruit, de-flowering crops, etc. There are often restrictions on pesticide usage (for example, do not conduct x task within 48 hours of application) that can impact farm operations by limiting the ability to conduct other necessary agricultural practices, and this question allows us to ask those sorts of specific questions that relate to impacts of pesticide mitigation.

Conservation Practice(s): Refers to a number of tactics employed by growers (and often endorsed by government programs) to prevent loss of soil or crop material from land by erosion, runoff, etc. or to provide habitat for beneficial species. Some common examples include conservation tillage, reduced/no tillage, vegetative filter strips, strip cropping, terracing, terrace farming, cropped/grassed terraces, grassed waterways contour tillage/farming, crop residue management, water/sediment control basins, in-field vegetative filter strips, riparian buffers, flowering refuges, habitat enhancement, etc.

Auditing scheme(s)/system(s): Auditing schemes or systems are typically established for the purpose of guaranteeing compliance with government or non-government standards for food safety standards, environmental practices, fair trade, or labor. Examples include the USDA AMS programs including organic certification and accreditation and good agricultural practices (GAP) audits, Primus Global Food Safety Initiative (GFSI) audits, and the Equitable Food Initiative (EFI) certification.

Management decision(s): Refers to decisions made by agricultural operation owners/managers regarding use of pest management tools, technology adoption, or other agronomic decisions related to pest management with implications for operation profits, environmental impact, or occupational safety.

Specific goal(s): Refers to a goal of an agricultural operation owner/manager (e.g., reducing environmental impact, improving occupational safety, increasing profits, meeting pesticide use restrictions, etc.) that could affect decisions about agricultural practices/tasks.

Specific pest management program: Describes a variety of approaches to applying treatments to manage target pests. Some examples include a preventative program, avoidance program, monitoring program, suppression program, integrated program, a threshold-based program, a reactive program, a curative program, or others.

Type of trap or other monitoring mechanism: Used for questions about pest monitoring and can include various types of traps or monitoring devices. Examples include wing traps, spore traps, delta traps, pitfall traps, pheromone traps, fly strips, pane traps, passive interception, kairomone traps.

Service(s)/source(s) of information: Refers to sources of information that may be used by producers to determine best agricultural management practices. Examples include extension agents; technical advisors; crop advisors; other producers; chemical registrants, retailers, and distributors.

User/Operator

User(s)/Operator(s): Anyone involved in any capacity with pesticide application. Including: *Applicators* (Person who physically applies pesticide), *Mixer/loaders* (Person who mixes pesticide and/or loads it into application equipment), *Other Workers*, etc. The tasks conducted by these individuals may overlap (e.g., a worker could be both an applicator and a mixer/loader, or those activities might be conducted by separate individuals). May also include individuals who interact with treated material, but do not themselves participate in application.

Pest

Pest(s): Generally, this will be a species that is targeted by a pesticide treatment, and can include weeds, parasitic plants, fungi, insects, vertebrates, nematodes, bacteria, viruses, or other micro-organisms. A pest is a species of organism that negatively impacts the goals of agricultural producers via direct or indirect damage, quality impacts, competition, contamination, etc.

Terminology

Term(s): Often included in questions seeking specific info about a grower's understanding of label verbiage or other commonly used technical language - including informative as to whether EPA's proposed verbiage will be understood.

Inputs

Treatment(s): The pesticide active ingredient of interest (might rarely include a biological, biochemical, non-microbial, or behavioral-altering based material, such as pheromone mating disruption in some cases, hence a broad term). Can include specific product, active ingredient, type of pesticide (e.g. insecticide, herbicide, fungicide), etc.).

Alternative option(s): Same as 'treatment,' but generally couched in a question about what producers would use in the absence of the treatment under consideration for mitigation. Could include mechanical methods of pest control, e.g., hand removal of weeds.

Soil amendment(s): This can refer to a variety of non-pesticidal treatments added to soil. Some examples include fertilizers, nutrient enhancers, inoculants, additives, bio-stimulants, composts, compost extracts, biological blends, residue, etc.

Other input(s): Includes any other agricultural input that does not fall under treatments or soil amendments. For example, fuel, irrigation equipment, netting, machinery, pollination services, etc.

Method

Application target(s): Where application of treatment is directed (e.g. soil, foliage, bark, surfaces, space treatment, livestock, etc.).

Application type(s): This includes a long list of varied ways treatments are applied to crops or agricultural system. Some examples include ground broadcast sprays, aerial sprays, chemigation, mechanical incorporation, side dressing, banding, ultra-low-volume fogging, individual plant dips/drenches, trunk/vine drenches, spot treatments, etc.

Application equipment: Related to specific apparatus for delivery of treatment and can be couched in either general or specific terms. This encompasses a wide variety of available technology. Some examples include airblast sprayers, mechanically pressurized hand wands, backpack sprayers, sprayers with laser technology, groundboom rigs, aerial rigs, etc.

Crop Stage/application timing(s): Refers to a timing based upon a developmental point in the life of a crop and/or when a treatment is applied. May be influenced by presence or expected presence of pests. Some examples include emergence, tillering, leaf development, bud break, pre-bloom, bloom, post-bloom, vegetative stages (in agronomic crops, terms like V-1, V-2, V-3, etc.), reproductive stages (in agronomic crops, terms like R-1, R-2, R-3, etc.), pre-harvest, at-harvest, post-harvest, time of year, etc. These terms and delineations vary widely by crop.

Spraying practice: Related more to methodology, this refers to a long list of potential parameters around how treatments are applied via spray. Some examples include the release height for spray or chemigation applications, the air-speed of an airblast sprayer, the ground speed of an application rig, or the use of some crop specific method to deliver treatments such as alternate-row-middle spraying, strip spraying, altered

spray volume per acre as just some examples.

Formulation(s): Refers to the formulation of a pesticide being used and can include myriad terms. The term formulation means a pesticide preparation supplied by the manufacturer for practical use and includes the active ingredient and inert ingredients. Some examples include liquids, emulsifiable concentrates, soluble concentrates, flowables, dry flowables, granulars, wettable powders, soluble powders, fumigants, etc.

Droplet size(s): For spray applications, the size of the spray particle can be a point of interest for both applicators and regulators. These can sometimes be defined by the average diameter of spray particles, or by terms such as ultra-fine, super-fine, fine, medium, coarse, ultra-coarse, etc.

Personal Protective Equipment/Engineering Control(s): Equipment worn by mixer/loaders and/or applicators or equipment designed to decrease exposure of pesticide handlers to the treatment.

Applications

Application rate: Referring to the rate at which a treatment is applied, and most commonly expressed in units such as grams per acre, pounds per acre, ounces per acre, fluid ounces per acre, (or hectare, or other area unit as described above).

Number of applications: the number of times a treatment is applied during a specified time period such as a crop season or year.

Mitigation

Impact(s): Generally associated with pesticide restrictions or proposed mitigations, these are the consequences to users that are of interest. Some common examples include: chemical costs, labor costs, convenience, yield, processing quality, nutritional quality, market quality, need for additional field passes, differential equipment costs, lost time/down time, reduced efficacy, enhanced efficacy, etc.

Specific mitigation: A change to pesticide labeling intended to reduce pesticide exposure to humans or the environment.

Variable that prohibits application: Anything that may impede application of a treatment, including: weather variables such as wind speeds, temperatures, precipitation (or lack of precipitation), atmospheric temperature inversions, or some combination of those. Non-weather variables can include things like soil type, topography, crop stage, presence of a non-target species, physical/agronomic obstacles, field setup, or other conditions/events we don't know about and are querying growers to describe.

Units

Statistical measure(s): Common measurement parameters around questions related to numerical responses. These can include terms like median, mean, average, minimum, maximum, etc.

Unit of area: Generally, refers to field or crop production area parameters such as acres, hectares, square meters, square feet, or volumetric measures for an indoor space treatment, such as cubic feet, cubic meters, etc.

Unit of volume: Generally, refers to the quantity of pesticide handled/applied, such as pounds, gallons, etc.

Unit of Time: Day, week, month, year, season, etc. are the most common examples. Any designation that limits the scope of a particular question based upon when a treatment would be applied, etc.

End tags that could be added to modify any question:

The following phrases are examples of text that can be added to base questions from the question bank to make them more specific.

- “in [unit of time]”
- “on [agricultural system(s)]”
- “treated with [treatment(s)]”
- “in [geographic area(s)]”
- “using [application type(s)]/[application equipment]”
- “for control of [pest(s)]”
- “to achieve [specific goal(s)]”
- Specification of preferred units
- Directions on how to answer the question, such as:
 - Please rank choices from most to least common and/or indicate frequency.
 - Check all that apply
 - Yes/no/don’t know
- Changing tense of the question, such as:
 - Were
 - Are expected to be
 - Are typically

Table A-1. Demographic Questions

Original#	New#	Question Category	Brief Description	Questions/ <u>Example</u> text blocks and display logic
--	T1	Text block	Intro	[Title] Greetings! Thank you for your support for this data collection effort on [subject of survey]. For this survey we are focusing on [Agricultural System(s), Agricultural Practice(s)/Task(s), etc.] . Please focus your answers on your use of [topic of survey] <u>over the past [xx] years</u>. We value your time and input. USDA’s Office of Pest Management Policy (OPMP) was created to support U.S. growers and to help maintain grower access to effective, affordable, and environmentally sound pest management tools. OPMP collects and provides accurate pest management information to Federal regulatory agencies, including the Environmental Protection Agency. This information gathering effort supports agricultural producers by ensuring that pesticide risk assessments and mitigation/labeling decisions are based on an accurate, timely, and realistic understanding of agricultural practices in the United States. For most respondents, answering the questions in this survey should take approximately [xx] minutes. Responses will help OPMP support U.S. producers’ continued use of pest management tools. <i>[more information about reason for survey]</i> Your responses will help ensure that regulators have an up-to-date understanding of [reason for survey such as: the critical uses, application methods, specific U.S. regional needs, and mitigation strategies/best management practices that are already being used to minimize exposure to non-target organisms]. Your responses are anonymous. For questions about OPMP’s mission or to learn more about how OPMP supports U.S. growers, please feel free to contact OPMP at: sm.opmp.pesticides@usda.gov, or visit our website at: https://www.usda.gov/oce/pest/about Please click on the right arrow below to begin the survey. Paperwork Reduction Act Statement: According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0503-0026. The time required to complete this information collection is estimated to average 15 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Individual reports are kept confidential. U.S. Code Title 18, Section 1905 and U.S. Code Title 7, Section 2276 provide for the confidentiality of reported information.
--	T2	Text block	Background	First, we will ask a few questions about your background.

Original#	New#	Question Category	Brief Description	Questions/ <u>Example</u> text blocks and display logic
new	D1	Demographic	Survey link	How did you receive this survey link? Select all that apply. • Certified Crop Advisors (CCAs) • National Alliance of Independent Crop Consultants (NAICC) • National Association of County Agricultural Agents (NACAA) • Other (please specify)
1	D2	Demographic	Specialization in agriculture	Regarding your specialization in [Agricultural System(s), Agricultural Practice(s)/Task(s), etc.] in the past five years, please select all that apply: • I work for an academic institution (e.g., professor, researcher, Extension Agent) • I am a Certified Crop Advisor (CCA) • I am a member of the National Alliance of Independent Crop Consultants (NAICC) • I am currently an agricultural producer of [use site] • I was previously an agricultural producer of [use site] • Other (please specify): • None of the above • [Additional response choices may be added to this question if needed to determine role or background.]
--	T3- display logic	display logic	T3- display logic	<i>If “none of the above” is selected in D2 display T3; otherwise skip to D3</i>
--	T3	Text block	off ramp (crop production)	Based on your response, it appears you are not part of the stakeholder community we are trying to survey. We are looking for respondents who are involved with [Agricultural System(s), Agricultural Practice(s)/Task(s), etc.]. If you are involved with one or more of these [Agricultural System(s), Agricultural Practice(s)/Task(s), etc.] and you selected that you were not in error, please hit the back button and continue the questionnaire. Otherwise, we thank you for your time and your response has been recorded.
5	D3	Demographic	Activity, Role, Involvement	In the [unit of time], which of the following [Agricultural System(s), Agricultural Practice(s)/Task(s), etc.] were you involved in (either as a producer or in an advisory capacity)? Select all that apply. • Checklist of use sites will be provided
--	T4- display logic	display logic	T4- display logic	<i>If “I was not involved in ...” is selected in D3 display T4; Otherwise skip to D4.</i>
--	T4	Text block	off ramp 2 (crops)	Based on your response, it appears you are not part of the agricultural stakeholder community we are trying to survey. We are looking for respondents who are involved with [Agricultural System(s), Agricultural Practice(s)/Task(s), etc.] If you are involved with one or more of these [Agricultural System(s), Agricultural Practice(s)/Task(s), etc.]and you selected that you were not in error, please hit the back button and continue the questionnaire. Otherwise, we thank you for your time and your response has been recorded.

Original#	New#	Question Category	Brief Description	Questions/ <u>Example</u> text blocks and display logic
--	D4- carry forward logic	display logic	D4- display logic	Ask question D4 for the choices selected in D3
2	D4	Demographic	Years in crop production	For approximately how many years have you been involved with the [one or more of these [Agricultural System(s), Agricultural Practice(s)/Task(s), etc.] indicated above? • <1 year • 1 - <5 years • 5- <10 years • 10- <20 years • 20 or more years
--	D5- carry forward logic	display logic	D5- display logic	Ask question D5 for the choices selected in D3
3	D5	Demographic	Operations/Area involved	Approximately how many [unit of area, number of operations] of the [Agricultural System(s), Agricultural Practice(s)/Task(s), etc.] identified do your answers represent? • Response options will depend on use site
4	D6	Demographic	Geographic Area	In which [geographic area(s)] were you involved with the [Agricultural System(s), Agricultural Practice(s)/Task(s), etc.] indicated above in the [xx] years? Select all that apply. • Checklist of areas will be listed
--	T5	Text block	Intro text	Next, we will ask about [topic of survey] .
Insert introductory questions about topic of survey				
--	T6- display logic	display logic	T6- display logic	If "I was not involved in [XXX]" is selected in question D6 display T6 Otherwise skip to next question
--	T6	Text block	off ramp 3 (other, e.g. methods)	The remaining questions in this survey pertain to [XXX] . If you have used [XXX] , please hit the back button and select [XXX] as [XXX] before continuing the survey. Otherwise, we thank you for your time and your response has been recorded.
Insert questions about main topic of survey				
--	T7	Text block	flow text	Next, we will ask you questions about [sub-topic] .
Insert questions about sub-topic of survey				
--	T8	Text block	flow text	You're almost done! Just two more questions to go.
new	F1	Optional Feedback	Optional feedback about topic	Optional: If you would like to share any additional information about [survey topic], please do so in the space below. • free text box
new	F2	Optional Feedback	Optional feedback about topic	Optional: If you would like to share any feedback on this survey, please do so in the space below. • free text box

Original#	New#	Question Category	Brief Description	Questions/ <u>Example</u> text blocks and display logic
--	T9	Text block	Outro	You have completed the survey! Your responses have been recorded. OPMP thanks you for sharing your time and expertise with our office. Your cooperation and input to this survey helps our office advocate for the needs of agricultural stakeholders in discussions with regulators. If you have other general thoughts you would like to share with us, please reach out to our office at: sm.opmp.pesticides@usda.gov. To learn more about OPMP's mission and how our office supports U.S. growers, visit our website at: https://www.usda.gov/oce/pest/about Thank you again!

Table A-2. Question Bank

OG ID	New #	Question Category	Question
212	1	Terminology	What is the term familiar to [user/operator] that indicates [term(s)]?
213	2	Terminology	What does the term "[term(s)]" mean to you?
214	3	Terminology	How does the term "[term(s)]" differ from "[term(s)]"?
172	4	Use Site	What was the [statistical measure] area/size of a [agricultural system(s)] [production area(s)/specific location(s) in a production area(s)]?
New (based on 188)	5	Use Site	What [statistical measure] of [geographic area] [unit of area] were planted with [agricultural system(s)]?
171	6	Use Site	What proportion of [agricultural system(s)] was produced under [management/practice] vs [management/practice]?
184	7	Use Site (Seed Treated/Traits)	What was the cost of [agricultural system(s)] seed?
185	8	Use Site (Seed Treated/Traits)	What was the cost of [seed characteristic] [agricultural system(s)] seed?
186	9	Use Site (Seed Treated/Traits)	What were the advantages/disadvantages of [seed characteristic] [agricultural system(s)] seeds?
188	10	Use Site (Seed Treated/Traits)	What percentage of [agricultural system(s)] acres were planted with [seed characteristic] seeds?
166	11	Use Site (Seed Treated/Traits)	What bittering agents, or other deterrents, were used to prevent non-target organisms from consuming treated [agricultural system(s)] seed?
154	12	Use Site (Seed Treated/Traits)	What size were pelleted [agricultural system(s)] seeds?
164	13	Use Site (Planting Practice)	What method(s) were used to plant [agricultural system(s)]?
165	14	Use Site (Planting Practice)	What was the [statistical measure] depth that [agricultural system(s)] seeds were planted?
178	15	Use Site (Seed Treated/Traits)	What proportion of the planted [agricultural system(s)] seed remained on top of the soil?

OG ID	New #	Question Category	Question
156	16	Use Site (Seeding Rates)	What was [statistical measure] seeding rate per [unit of area] for [agricultural system(s)]?
157	17	Use Site (Seeding Rates)	Why was [application rate] seeding rate used for [agricultural system(s)]?
114	18	Use Site (End Products)	What end products were produced from [agricultural system(s)]?
115	19	Use Site (End Products)	What was the range of distribution for end products produced from [agricultural system(s)]?
224	20	Use Site (Bridging)	Is it appropriate to extrapolate use patterns from [agricultural system(s)] to reflect use on [agricultural system(s)]?
168	21	Use Site (Soil Amendments)	Were [soil amendment(s)] applied in [agricultural system(s)]?
80	22	Use Site (Soil Amendments)	What was the [statistical measure] application rate for application of [soil amendment(s)] to [production area(s)/specific location(s) in production area(s)] on [agricultural system(s)]?
229	23	Use Site (Soil Amendments)	What was the estimated proportion of [soil amendment(s)] applied on [agricultural system(s)] [production area(s)/specific location(s) in production area(s)]?
167	24	Use Site (Soil Amendments)	For [agricultural system(s)], what was the [statistical measure] of nutrient input that was provided by [soil amendment(s)]?
230	25	Treatment	In what agricultural system(s) were [treatment(s)] used?
138	26	Treatment	What were the niche uses of [treatment(s)]?
New (based on 129)	27	Treatment	What factors were unique to [treatment(s)] that limited the area that can be treated?
112	28	Educational Resources	How often were the following service(s)/source(s) of information used to inform [management decision(s)]?
113	29	Educational Resources	Which of the following types of service(s)/source(s) of information offered by [service(s)/source(s) of information] were used as sources of pest management decision(s)?
63	30	Educational Resources	In an effort to [specific goal(s)], were any of the following service(s)/source(s) of information utilized?
New	31	Educational Resources	Were [services/source(s) of information] <u>accessible/easy to understand</u> ?
58	32	Conservation Practices	Were any of the following conservation practice(s)/agricultural practice(s)/task(s) used?
161	33	Conservation Practices	On what percent of [unit of area] was [conservation practice(s)]/[agricultural practice(s)/task(s)] used?
46	34	Conservation Practices	Were any of the following conservation practice(s)/agricultural practice(s)/task(s) used specifically to [specific goal(s)]?
109	35	Conservation Practices	On what percentage of acres were [conservation practice(s)]/[agricultural practice(s)/task(s)] used for [specific goal(s)]?
47	36	Conservation Practices	If any of the following conservation practice(s) were used, how easy or difficult was it to implement this practice or activity in terms of labor, training, capital expenditures, and other costs?
New	37	Conservation Practices	How has [conservation practice(s)] affected your operation?

OG ID	New #	Question Category	Question
48	38	Conservation Practices	If any of the following conservation practice(s) weren't used, why was this practice or activity NOT used?
107	39	Conservation Practices	What application type(s)/application equipment were used to enhance [conservation practice(s)]?
100	40	Conservation Practices	Were [treatment(s)] a component of [specific pest management program]?
148	41	Conservation Practices	How important was [treatment(s)] for [conservation practice(s)]?
179	42	Conservation Practices	Which of the following auditing <u>scheme(s)</u> /system(s), if any, did operations participate in?
136	43	Scouting/Monitoring	Were [pest(s)] monitored by [type of trap or other monitoring mechanism]?
133	44	Scouting/Monitoring	Was [pest(s)] scouting/monitoring done after application to evaluate degree of control?
134	45	Scouting/Monitoring	Was [pest(s)] scouting/monitoring data compared to published information on infestation thresholds to determine when to take measures to manage [pest(s)] in this [unit of area]?
132	46	Scouting/Monitoring	Why was pest(s) scouting/monitoring conducted?
101	47	Target Pest	What were the primary pest(s) of concern?
199	48	Target Pest	What were the target pest(s) of [treatment(s)]?
203	49	Target Pest	Were [treatment(s)] used to control [pest(s)]?
210	50	Target Pest	How common were applications of [treatment(s)] that target multiple pest(s)?
250	51	Worker Considerations (REI)	When [user(s)/operator(s)] re-enter the [agricultural system(s)] [unit of area], what [management/practice] were done?
New	52	Worker Considerations (Tasks)	What was the [statistical measure] number of [unit of volume] of [treatment(s)] an individual [user(s)/operator(s)] [management/practice] in a given [unit of time]?
141	53	Worker Considerations (Tasks)	What was the [statistical measure] number of [unit of area] an individual [user(s)/operator(s)] [<u>management/practice</u>] [treatment(s)] to in a given [unit of time]?
New	54	Worker Considerations (Tasks)	How many individuals were generally involved in [management/practice] [treatment(s)] per [unit of time]?
New	55	Worker Considerations (Tasks)	How many RUP Certified [user(s)/operator(s)] are available to the operation during [unit of time]?
246	56	Worker Considerations (Tasks)	What were the number of refill events of [treatment(s)] per [unit of time], per [user(s)/operator(s)]?
New	57	Worker Considerations (Tasks)	Are [user(s)/operator(s)] contractors or operation staff?
New	58	Worker Considerations (Tasks)	How commonly were [user(s)/operator(s)] also [user(s)/operator(s)]?

OG ID	New #	Question Category	Question
New	59	Worker Considerations (PPE-EC)	What PPE/engineering controls do you use for [treatment(s)]/[formulation(s)]?
New	60	Worker Considerations (PPE-EC)	What PPE/engineering controls are available for [treatment(s)]/[formulation(s)]?
240	61	Method	Was application equipment owned, shared, rented, and/or leased and/or was application done by a custom applicator?
New (based on 33)	62	Method	What type of [application equipment] was used when making [application type(s)]?
215	63	Method	Were [application type(s)]/[application equipment] used indoors, such as [agricultural system(s)], or outdoors, such as [agricultural system(s)]?
192	64	Method	What was the standard size of tanks for [application equipment] used for [application type(s)]?
99	65	Method	How often did [variable that prohibits application] impede application?
175	66	Method	What were the disadvantages of [application type(s)]/[application equipment]?
174	67	Method	What were the advantages of [application type(s)]/[application equipment]?
235	68	Method	What was the importance of [application type(s)]/[application equipment]?
25	69	Method	Were [application type(s)]/[application equipment] always important or only in certain situations?
243	70	Method	What were the preferred [application type(s)]/[application equipment]?
31	71	Method	Why were [application type(s)]/[application equipment] preferred over others?
222	72	Method	Was [application type(s)]/[application equipment] used more frequently than [application type(s)]/[application equipment]?
40	73	Method	How often were [application type(s)]/[application equipment] used?
New	74	Method	What treatment(s) were applied using this [application type(s)]/[application equipment]?
42	75	Method	If applications were incorporated, what was the target depth?
41	76	Method	If chemigation applications were watered in, what was the target depth?
60	77	Method	How often was [application equipment] cleaned?
65	78	Method	Was separate application equipment used for applications?
New (based on 244)	79	Method (Bridging)	Is it appropriate to extrapolate use patterns from [agricultural system(s)] to reflect use on [agricultural system(s)]?
50	80	Method (Spraying Specific)	Which of the following spraying practice(s) were used to make applications?
49	81	Method (Spraying Specific)	Which of the following spraying practice(s) resulted in a sprayer re-calibration?
52	82	Method (Spraying Specific)	What was the [statistical measure] spray volume, in gallons per acre (GPA), for application(s)?

OG ID	New #	Question Category	Question
53	83	Method (Spraying Specific)	What was the [statistical measure] operating pressure, in pounds per square inch (PSI)?
55	84	Method (Spraying Specific)	What was the [statistical measure] ground speed when making application(s)?
New	85	Method (Spraying Specific)	What was the [statistical measure] height above the ground or plant canopy when making applications?
57	86	Method (Spraying Specific)	What target droplet size spectrum was generally used when making spray applications?
54	87	Method (Spraying Specific)	What type of nozzle(s) were used when making spray application(s)?
62	88	Method (Spraying Specific)	What were the most common reasons for replacing the nozzle(s) on the sprayers?
New (based on 36)	89	Method (Target)	What were the application target(s)?
59	90	Method (Target)	In which direction was the majority of material from [application type(s)]/[application equipment] directed?
New	91	Method (Target)	Why were applications made to [application target(s)]?
26	92	Method (Timing)	What were the primary application crop stage/application timing(s)?
New (based on 98)	93	Method (Timing)	Why were applications made at [crop stage/application timing(s)]?
232	94	Method (Formulation)	Were [formulation(s)] used?
38	95	Method (Formulation)	Why were the [formulation(s)] important?
32	96	Method (Formulation)	Why were [formulation(s)] preferred over others?
237	97	Method (Formulation)	What problems did [formulation(s)] pose?
81	98	Rate (Vol)	What was the [statistical measure] [unit of time] application rate for [treatment(s)] on [agricultural system(s)]?
150	99	Rate (Vol)	What was the [statistical measure] number of [unit of area] that were treated with [treatment(s)] in a [unit of time] on [agricultural system(s)]?
93	100	Rate (Vol)	What were the [statistical measure] application rates of [treatment(s)] per seed used on [agricultural system(s)]?
New	101	Rate (Vol)	What was the [statistical measure] [unit of time] application rate for [treatment(s)] on [agricultural system(s)]?
95	102	Rate (Why Vol)	Under what conditions was [treatment(s)] used at [application rate] on [agricultural system(s)]?
78	103	Rate (Why Vol)	For what purposes were [statistical measure] application rate of [treatment(s)] used on [agricultural system(s)]?
82	104	Rate (Why Vol)	Under what circumstances were [unit of time] [treatment(s)] application rates above [application rate] on [agricultural system(s)]?
94	105	Rate (Why Vol)	Why were different application rates of [treatment(s)] per seed be used on [agricultural system(s)]?

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New	106	Rate (Why Vol)	Why were application rate(s) used for application(s) of [treatment(s)] made to [production area(s)/specific location(s) in production area(s)] on [agricultural system(s)]?
New	107	Rate (#)	What was the [statistical measure] [unit of time] application number for [treatment(s)] on [agricultural system(s)]?
35	108	Rate (#)	How frequently were application(s) of [treatment(s)] made to [production area(s)/specific location(s) in production area(s)] on [agricultural system(s)]?
146	109	Rate (Why #)	What were the drivers for applying [number] applications of [treatment(s)] on [agricultural system(s)]?
140	110	Rate (Why #)	How likely was it that multiple applications of [treatment(s)] were made on [agricultural system(s)] within a [unit of time]?
143	111	Rate (Why #)	Under what circumstances did the number of applications of [treatment(s)] exceed [number] applications on [agricultural system(s)]?
145	112	Rate (Why #)	What were the [statistical measure] application intervals used when applying [treatment(s)] on [agricultural system(s)]?
218	113	PCT	What percent of [agricultural system(s)] were treated with [treatment(s)]?
228	114	PCT	When treating with [treatment(s)], what percentage of applications only occur in [production area(s)/specific location(s) in production area(s)]?
189	115	Rotate/Tank Mix	Was [treatment(s)] primarily used alone or in combination with other [treatment(s)]?
180	116	Rotate/Tank Mix	Were [treatment(s)] rotated and/or tank mixed (with different Modes of Action (MOA)) for the purpose of [specific goal(s)]?
116	117	Geography (Where)	Where does the use of [treatment(s)] occur?
119	118	Geography (Where)	Where in [geographical area(s)] was [treatment(s)] used?
117	119	Geography (Where)	Are there any [geographic area(s)] where [treatment(s)] was an important control measure?
New	120	Geography (Where)	What special considerations exist for [production area(s)/specific location(s) in production area(s)] on [agricultural system(s)]?
129	121	Geography (Where)	What factors were unique to [geographic area(s)] that limited the area that can be treated?
120	122	Geography (Differences)	How did use patterns vary between [geographical area(s)]?
44	123	Cost Of Application	In [unit of time], what was the cost per application of [treatment(s)] in dollars per [unit of area]?
219	124	Alternatives (Options)	Were [treatment(s)] used more than [treatment(s)]?
6	125	Alternatives (Options)	What other management options are available if [treatment(s)] was not available?
2	126	Alternatives (Options)	What alternatives to [treatment(s)] are available where [treatment(s)] is currently used?

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3	127	Alternatives (Options)	What alternative option(s) are available for [pest(s)] targeted by [treatment(s)]?
New	128	Alternatives (Efficacy/Cost)	How much higher are the costs to use [treatment(s)] than [treatment(s)]?
10	129	Alternatives (Efficacy/Cost)	What are the advantages of [treatment(s)] relative to [alternative option(s)]?
11	130	Alternatives (Efficacy/Cost)	What are the disadvantages of [treatment(s)] relative to [alternative option(s)]?
7	131	Alternatives (Efficacy/Cost)	How do [alternative option(s)] compare to [treatment(s)] in terms of product performance?
13	132	Alternatives (Efficacy/Cost)	If [treatment(s)] was not available, what would be the estimated yield impact(s) and/or quality losses when using [alternative option(s)]?
New (based on 12&15)	133	Alternatives (Efficacy/Cost)	If [treatment(s)] was not available, what other expected costs would be incurred, besides potential yield or quality losses?
12	134	Alternatives (Efficacy/Cost)	If [treatment(s)] was not available, besides potential yield or quality losses, what other expected costs would be incurred if [treatment(s)] were no longer available and alternative option(s) had to be adopted?
15	135	Alternatives (Efficacy/Cost)	If [treatment(s)] was not available, how would the chemical costs per [unit of area] change?
16	136	Alternatives (Efficacy/Cost)	What would be the disadvantages of using the next best alternative option(s) to [treatment(s)]?
27	137	Mitigation Feasibility	Could [application type(s)]/[application equipment] of [treatment(s)] be effectively/efficiently replaced by [application type(s)]/[application equipment]?
28	138	Mitigation Feasibility	Could [formulation(s)] of [treatment(s)] be replaced by [formulation(s)]?
30	139	Mitigation Feasibility	Would [droplet size(s)] be feasible for [treatment(s)]?
29	140	Mitigation Feasibility	How could [specific mitigation(s)] affect [treatment(s)]?
159	141	Mitigation Feasibility	If a [specific mitigation(s)] were required to use [treatment(s)], what resource considerations would arise?
239	142	Mitigation Feasibility	What changes would be required if [application type(s)]/[application equipment] of [treatment(s)] were switched to [application type(s)]/[application equipment]?
New	143	Mitigation Feasibility	What is the [statistical measure] number of [unit of time] over which you could apply [treatment(s)] effectively?
34	144	Mitigation Feasibility	How many [unit of area] can be treated with [treatment(s)] in [unit of time] on [agricultural system(s)]?
155	145	Mitigation Feasibility	Could [agricultural system(s)] seeds be pelletized to [number]?
187	146	Mitigation Feasibility	What type of impact(s) would be observed if [seed characteristic] was mandatory?
147	147	Mitigation Feasibility	Would loss of availability of [treatment(s)] affect the feasibility of [conservation practice(s)]?
247	148	Mitigation Feasibility	What are the specific impact(s) that might be expected if the re-entry Interval (REI) was greater than [number] [unit of time]?

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248	149	Mitigation Feasibility	What is the maximum re-entry interval (REI) that would be acceptable on [agricultural system(s)]? The current REI is [number] [unit of time].
253	150	Mitigation Feasibility	What would be the expected impact(s) from a requirement to use [Personal Protective Equipment/Engineering Control(s)]?
238	151	Mitigation Feasibility	What changes would be required if [formulation(s)] were switched to [formulation(s)]?
69	152	Rate (Lowest Effective)	What is the lowest effective application rate of [treatment(s)] that could be used to control for [pest(s)]?
70	153	Rate (Lowest Effective)	What is the lowest effective application rate of [treatment(s)] that could be used on [agricultural system(s)]?
72	154	Rate (Lowest Effective)	What was the lowest effective application rate of [treatment(s)] when used in tank mixes with [treatment(s)] that could be used to control for [pest(s)]?
New (based on 72)	155	Rate (Lowest Effective)	What was the lowest effective number of applications of [treatment(s)] when used in tank mixes with [treatment(s)] that could be used to control for [pest(s)]?
84	156	Rate (Rotate/Tank Mix)	How would [treatment(s)] application rates differ when used alone versus in combination with [treatment(s)]?
226	157	Rate (Rotate/Tank Mix)	Would rotating chemistries reduce the likelihood that [number of applications] are needed per [unit of time]?
New	158	Inputs	In what [unit of time] are [agricultural system(s)] [inputs] purchased for the next growing season?
New	159	Inputs	How do [inputs] prices affect producers' decisions?
New	160	Inputs	Have producers of [agricultural system] faced shortages of [inputs]?
New	161	Other	<i>[Other questions not explicitly written out in this question bank. New questions will be added to the question bank if used]</i>