



MANAGEMENT HISTORY DISCUSSION GUIDE

A RESOURCE FOR TECHNICAL ASSISTANCE PROVIDERS PLANNING COVER CROP PROJECTS

Introduction

A thorough and grounded understanding of a producer's management practices and goals is critical for providing effective technical assistance. If you don't understand the producer's current management, you cannot build on their success nor improve on problem areas.

Learning to LISTEN and FOLLOW CLUES in a conversation with a producer takes time and practice, especially if you are not already familiar with the cropping systems they are managing. The following questions and discussion guide is meant to help open conversation with the producer, allowing you to gain producer- and site-specific insight to guide your work. Choose the questions that make sense in the situation at hand (not all of these will apply in every situation).

Before You Go

Plan to do your homework before going into the field. If you are unfamiliar with the producer's cropping and management system, make an effort to learn what is standard in your region. Three helpful resources to review in advance to orient yourself to an unfamiliar system include:

- **UC Integrated Pest Program** - detailed information about key pests by crop, as well as management approaches that may intersect with conservation practices.
- **UC Cost Studies** - cost studies for major crops by region; give an overview of the schedule of operations for crops, economics of production, and the management norms
- **CA Fertilization Guidelines** - *search by crop to understand nutrient management for major crops in the state.*

SUGGESTED QUESTIONS FOR YOUR SITE VISIT

Management History

Try to get a solid understanding of the current management system, what has been done in the recent past, and any changes planned by the producer. Consider asking:

- **What has this ground been used for in the past 5-10 years?** - *Even if a producer is new to a piece of land, they may still know what has happened there previously. You want to understand both the current management and what has been done in the recent past.*
- **How long have you been in the current management system? Are you considering any changes?**
- **If you are considering management changes, why?** - *Is the producer addressing a problem? Can they create an advantage by making a change? How so? Try to get as much information about the proposed changes (and motivation for the changes) as possible.*
- **If you are considering changes, where did you learn about the possible benefit of the change you are considering?**
- **What concerns do you have about your current management?** - *Possible concerns could include crop yield, crop quality, profitability, visible impact on soil/water or other natural resources, etc.*

Crop Rotations

- **What crops are typically grown here?**
- **Is there an order or rotation in which they are grown? If so, why?** - *Try to understand the producer's goals with the crop rotation (e.g. break disease/pest cycles, capture residual nutrients, piggyback on a land treatment like fumigation, etc.)*
- **For perennial systems:**
 - **How long has the current crop been in the ground? How long will it remain?**
 - **Are there any different management zones (e.g. tree/vine row vs alley)? Is there any diversity in what grows in each?**

Tillage

- **What types of tillage implements do you use?** - *Ask to see them and take photos if possible.*
- **What is the objective of each step of the tillage?** - *Goals could include breaking a compaction layer, incorporating residue, breaking large clods, shaping beds, etc.*
- For perennial systems:
 - **How are the rows vs alleys treated differently? Consider management zones.**

Soil Cover

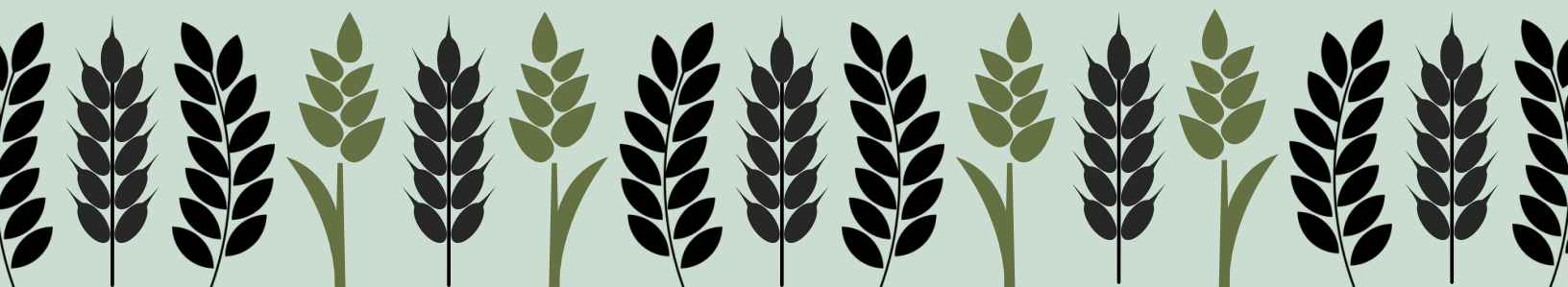
- **For how many months each year is the soil surface covered?** - *This should be at least 75% cover, but could include plants, residue, mulch, etc.*
- It is sometimes helpful to frame this question in reverse - **Are there any periods of the year when the soil is bare?**
 - **If so, is there a reason for the soil to remain bare?**
 - **When does this bare ground period occur?**
- For perennial systems, again **consider management zones** (e.g. row vs alley)

Grazing

- **Is the cropland grazed? If so, list the animal type, number, and weight.**

Know your producer; this question should only be asked if you have a good reason to do so. If you aren't sure, a better way to frame this is saying:

"You haven't mentioned / I haven't seen any animals here; am I correct to assume that you do not have animals grazing or otherwise engaged in this operation?"



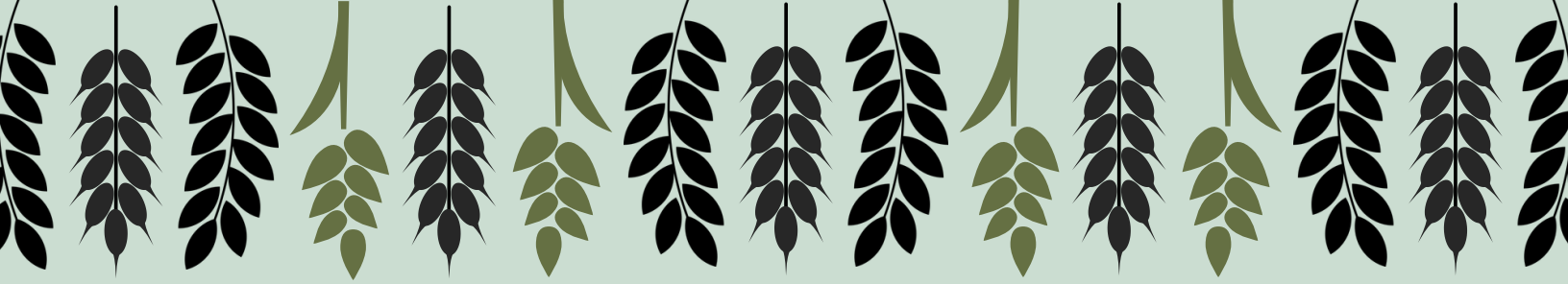
Cover Crops

You may have already received much of this information when you asked about crop rotation, management history, and soil cover. Build on what you have already been offered without getting unnecessarily repetitive.

- **Are cover crops a consistent part of the cropping system?**
- *If cover crops are part of the system, ask:*
 - **For how many years has the field been continually cover cropped?**
 - **What cover crop is planted?**
 - **When is the cover crop planted?**
 - **How does the cover crop fit within your cropping system?**
 - **Do you see any benefits or problems with your cover cropping plan, and if so what are they?**
- *If cover crops are not part of the system, ask:*
 - **Have you tried cover crops before?**
 - **If you tried and discontinued cover cropping, what didn't work out like you had hoped?**
- **What do you see as the positives and negatives of including cover crops in your system?**
- **Again, consider management zones.** - *Ask about resident vegetation (aka weeds). Ask if any cover is planted in the alleys vs rows, and if so how wide is the planting.*

Cover Crop Termination

- **How are your cover crops terminated?** - *In our region, common methods include, mowing, disking, and mowing then disking. Other common answers include a "burn down" (herbicide application to kill the cover crop), rolling it, or using a roller-crimper.*
- **What equipment is used to terminate the cover crop?**
- **Have you had any problems with the cover crop not terminating effectively? Did it cause any "weed" problems for you?**
- **Have you had any problems with the cover crop residue interfering with planting the following cash crop?**



Integrated Pest Management

The goal of asking about IPM is to understand the broader management considerations. Listen for pest issues, including weeds, that cover crops may impact. Cover crops may help with some pest management issues, but they may also require management to address potential adverse impacts. Listen for ways that adding cover crops to a system may impact pest management.

- **What integrated pest management strategies do you use?** - *e.g. crop scouting, selective spraying, treated seeds, removal of diseased plants, pest harborage areas etc.*
- **What soilborne diseases / pests are critical in your cropping system? What IPM strategies do you find useful to manage them?** - *Listen for things like breaking disease / pest cycles by planting something that the disease / pest does not affect.*

Nutrient Management

What we are listening for is information to help us understand how nutrients are supplied and managed.

- **What nutrient management strategies do you use?** - *e.g. banding, split application, use of the 4R's concept, manure / compost / biochar, etc.*
- **Do you see cover crops as a nutrient source for your cash crop? Are you worried about cover crops tying up nutrients?**
- *If organic amendments (e.g. compost) are used, when and how are they applied?*
- *Try to understand the producer's approach to fertilizer. Do they view synthetic fertilizers as a necessary tool? Do they count on the nutrient cycling in the soil to meet some of the cash crop's needs via nutrient cycling?*

Irrigation

- **Is the field irrigated? If so, what irrigation system is used and how much water is applied to each crop in the rotation (in acre inches)?** - *If they don't know how many acre inches are applied, ask about estimated run time, frequency of irrigation, etc.*
- **What is your water source? Is the available water good quality? Is it available in the volume / pressure you need, at the time you need it?**
- **Have you ever experimented with your irrigation approach? What happens if you irrigate your crops later? How do your crops do in less-than-ideal conditions?**
- **Would you ever consider irrigating a cover crop?**

Drainage and Water Management

- **Does water pond or run off during or immediately after typical rainfall or irrigation events? If so, where in the field does this happen?** - *Ask this if you observe evidence of ponding, crusting, or runoff while walking the field with the producer.*
- **Do you have any problems with crop emergence or early crop growth? If so, where in the field?** - *When strong surface crust is present, it can hinder the emergence of smaller seeded crops. In many California crops, an anti-crusting amendment (often phosphoric acid) is applied, which may mask the symptoms of this issue even when the problem exists. If the producer direct seeds the cash crop, ask "Do you apply any anti-crustant to help with seedling emergence?"*
- **Is water management a concern for you? Are there any issues with the field being too wet or too dry at the time of planting? Do drainage issues prevent you from working the ground on your desired schedule?**
- **Do you get the benefit you expect from your irrigation water?** - *You are trying to understand if the soil health of the field is affecting irrigation efficiency. A well-structured soil with adequate soil organic matter (which cover crop will help) will hold more plant-available moisture. It may be possible to go longer between irrigation events and/or apply less water during each event if soil conditions are optimized.*
- *Note that in critically overdrafted basins and areas where Groundwater Management Agencies are active, the availability of water may be a significant concern or producers.*

Miscellaneous

Other observations may not fit into the categories above, but are still relevant to your understanding of the producer's system and needs. Other potential questions to ask include:

- **Are there any changing weather patterns that are impacting your production?**
- **Have there been any changes in erosion issues? If so, where?**
- **Are there any parts of your field that do much better or much worse than others (e.g. yield, quality, disease, etc.)? Do you have any ideas why that is the case?**

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