

Case Study 2

La Grande Farm

Location: Union County, zip code 97850

Approx. 3 miles E of La Grande, Oregon. Additional wheat field approx. 3 miles NE of town.

Description: Irrigated/non-irrigated farm raising winter wheat, alfalfa, grass seed, and mint.

General:

- Low-income producer with limited ability to hire extra labor
- ~13 acres headquarters.
- ~15 acres wildlife habitat.
- ~420 acres cropland (main farm) - ~300 acres irrigated
 - Irrigated rotation is winter wheat/alfalfa or mint (4-5 yrs)/winter wheat/grass seed (4 yrs)
 - Non-irrigated rotation is direct seed winter wheat/alfalfa/direct seed winter wheat or direct seed winter wheat/chemical fallow
- ~200 acres non-irrigated winter wheat/chemical fallow (north farm)
- Main roads into farm are paved. Other traffic areas are either graveled or bare.

Irrigation:

- Currently using sprinkler irrigation on wheel lines. Wheel lines are on a single diesel pump, but the crops have diversity of timing of water needs.

Cropland:

- Farmer uses conventional tillage and commercial fertilizer
- Weeds are an issue – currently broadcast spraying of herbicide
- Grass residue is currently burned in the field

Objectives:

- Farmer is interested in developing some carbon credits as supplemental income
- Farmer is looking for ways to save energy throughout the operation to minimize costs
- Farmer is concerned about wind erosion from the non-irrigated cropland.
- Farmer is interested in alternatives to burning grass residue, as public opposition to field burning is increasing.

Additional Info: - The farm is located very near the town of La Grande, with development moving toward the farm.
- There is an expanding market for all types of straw/crop residue for feed and bedding. Additionally, there is talk around town that a new cellulosic ethanol facility is being planned for the area, and a new wind farm to help supply electricity is being built to handle some of the new development in the area. Several farmers in the area are baling grass residue and then using a propane burner on the remaining residue.

Case Study 2 Exercise
LaGrande Farm
Energy Exercise Directions

1. Considering the landowner's objectives and concerns, identify the activities on the operation that use significant amounts of energy.
2. Identify alternatives to the above activities that can help the landowner save energy.
3. Run the respective -- tillage, and irrigation -- energy awareness tools to estimate energy use and potential savings for each of these type of activities.
4. Identify renewable energy opportunities for this farm.
5. Summarize your recommendations in a report for the group.

Air Quality and Atmospheric Change

Airshed and On-Farm Assessment Steps

1. Airshed Assessment: Meteorology/Climatology/Topography/Landscape:
 - Briefly describe the topography and landscape characteristics of the farm in question (see topo sites on web reference handout sheet, or others). Get a rough sense about the area of the farm and regions outside the farm, at various scales—familiarize yourself with the farm situation with regard to potential airsheds and watersheds
 - Briefly describe the possible weather and climate factors that may influence the air quality impacting the farm. At a minimum this should include:
 - Examine the relevant wind roses for at least several months
 - Examine a temperature, humidity and precipitation summary for a nearby location, including information on inversion potential
2. Airshed Assessment: Pollutant Formation and Sources, and Resource Concerns
 - Briefly review and document the potential agricultural air emissions of importance (as presented in class)
 - Briefly review NRCS AQAC resource concern components and quickly hypothesize about how each may be relevant to this farm situation
 - Briefly examine the emissions sources outside the farm that may affect the farm's management of air emissions, and describe how these relate to NRCS AQAC resource concerns. Emission sources nearby and those at distance that may be of concern
3. Airshed Assessment: Relevant Regulations and Receptors
 - Is the farm in a nonattainment area for a criteria pollutant? If so, identify and document these
 - Are there any nearby federally-protected Class I Areas? If so, identify and document these
 - Are there any federal, state, regional, and/or local air quality regulations of concern to this operation? If so, identify and document these.
 - Examine the nearby area for receptors of concern and document these (include schools, hospitals, residences, retail, roads, others?)
4. On-Farm Assessment:
 - Trust your senses, especially sight and smell. Observe not only existing air quality issues, but also situations which could lead to or indicate a potential air quality problem. Record these observations.
 - Identify and evaluate on-farm sources of air emissions of concern
 - Location, location, location. How does this affect this operation?
 - Use the AQAC On-Farm Assessment Checklists to evaluate potential sources and emissions
 - Use appropriate AQAC tools to evaluate emissions, options, etc. (COMET-VR, SNAP, others)

- If interested in carbon sequestration in soils and vegetation, evaluate predicted carbon storage with current management using COMET-VR, then make an additional run to predict changes on carbon storage with changes in land management
- Rank these emissions and sources by their importance relative to conservation and regulatory goals (manage to be “out of control”): Prioritize actions!
- Design conservation activities/practices/systems to specifically address these actions and outcomes. Consider specific practice standards that may be relevant Look for synergies – be efficient!
- Think about how these conservation activities/practices/systems may impact other resources (i.e., SWAPA+H and Energy?)
- Review and recommend specific NRCS Programs to implement AQAC practices/activities

Reference material:

- Website References for AQAC Information
- AQAC Definitions and Acronyms
- AQAC Activity-Practice List
- AQAC Practice Standards Air Check
- AQAC On-Farm Assessment Checklists



Conservation Plan Map

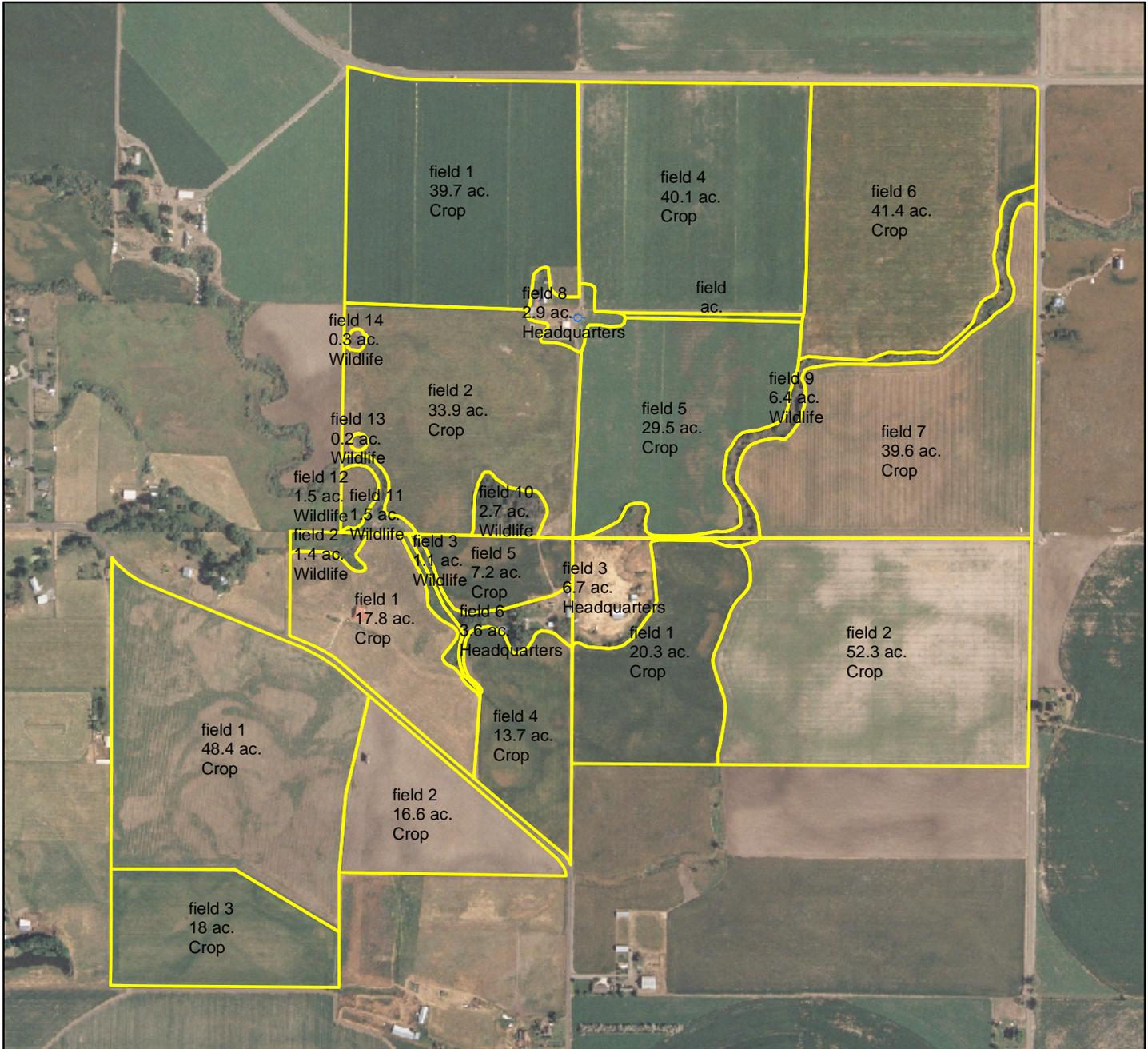
Date: 6/22/2007

Customer(s):

District: UNION SOIL & WATER CONSERVATION DISTRICT

Field Office: LA GRANDE SERVICE CENTER
Agency: Natural Resources Conservation Service

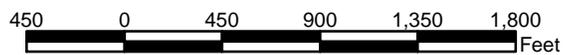
Assisted By:
State and County: OR, UNION



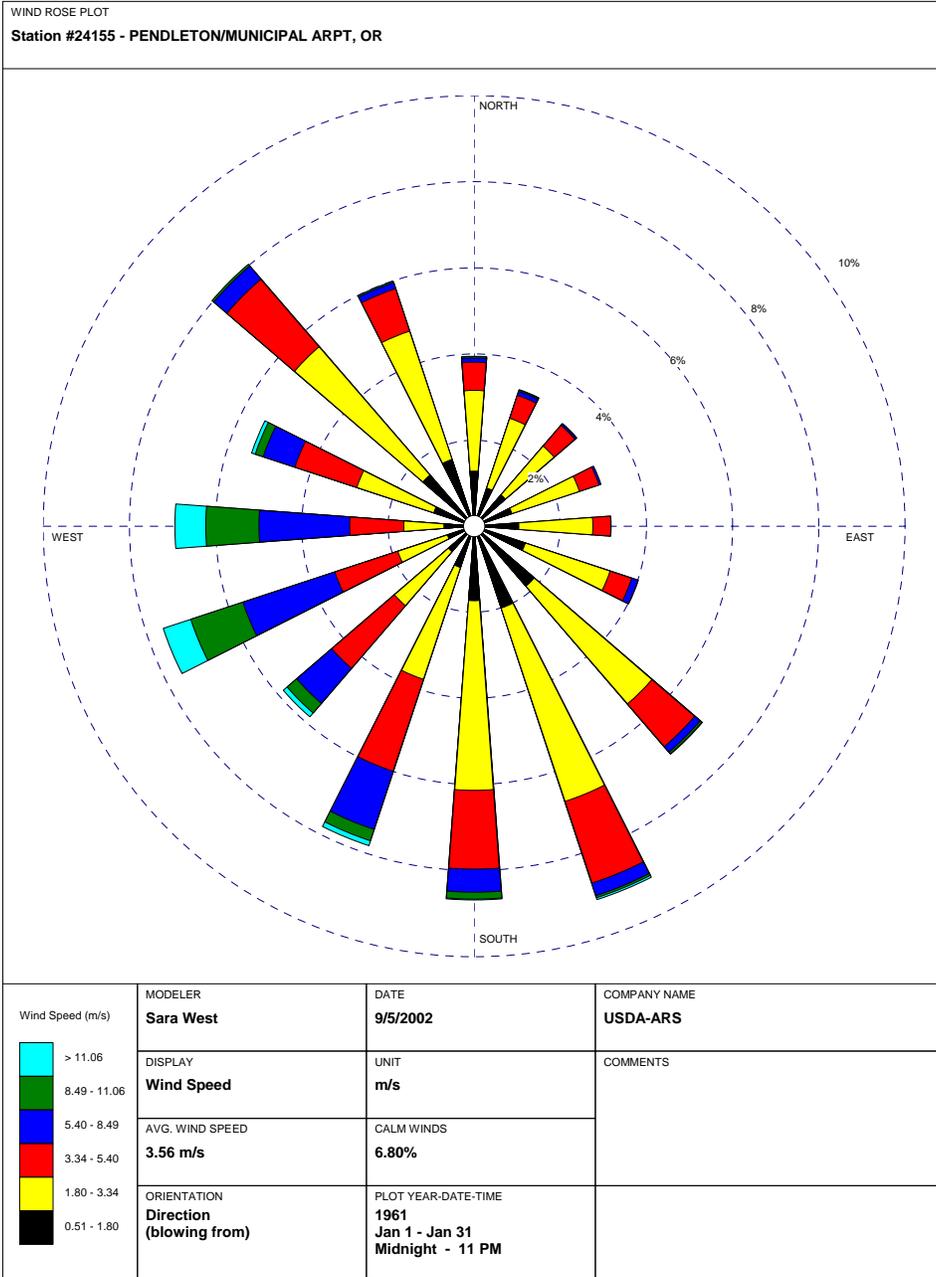
Legend



-  well
-  Farm



January Wind Rose for Pendleton



July Wind Rose for Pendleton

