LSB CWG Ag Subteam Meeting
August 4, 2021

Attendance

- Josue Medellin
- Josh Viers
- Chris Campbell
- John Brennan
- Mike Denny
- Maya Kepner
- Dane Lowry
- Helen Swagerty
- Sharon Hu

Notes

Recap of Workshop Outcomes

- Action items from workshop
    - Reaching out for insurance spreadsheet
    - Reaching out to ducks unlimited for spreadsheet/economic modeling for operations
    - Viability of agriculture to represent objective.
- Recap of May 4 Workshop Presentations

Overview of Ag Economics

- Economic principles
- Modeling Framework – Calibration and scenarios
- Yield response curves
    - Q to group: Do these look like a fair representation of inundated fields?
- Yield costs and benefits
    - Q to group: Do these cropping patterns look accurate?
    - Major crop categories come from Land IQ open access data from DWR.
    - Economics of Production developed based on cost of return studies for different crop categories.
- 15% yield reduction impact – we are showing reduction of $1m in gross revenues using standard analysis for fed/state projects.
- Assumptions
    - Profits are maximized through constrained optimization – this is a big assumption.
    - Water markets are unit of analysis at zero transaction costs – e.g. is it possible to trade with other regions for water?
    - Production costs are non-linear.
- Model cannot predict
    - Price/cost changes
    - Introduction of new crops
    - Water shortages
    - Land limitations

Discussion

- Comment (Maya): DWR's land use and crop data is not accurate. This does not cover what is currently being farmed on the property. This is very important to us. Can this be corrected?
    - Response (Josue): Yes, we can incorporate historic records if you have access to them so that they are represented in the model.
    - Response (Maya): Yes we can get this to you.
- Question (Josh): How can we get this data? Are there different crop types or different acreages?
    - Response (Mike): No corn in 2018. Mostly all rice.
    - Response (Josue): I can share the table we are using with publicly available data.
- Question (Mike): Are you using current revenue or revenue as of 2018?
    - Response (Josue): Ideally we have a range for the margin of profit, so to the extent that we can be provided with marginal information, this would be helpful to check for accuracy/to see if money is being lost in cost of return studies.
- Comment (Mike): You need different information for organic rice.
    - Response (Josh): The model will reallocate as a means to achieve maximum profit. It is critical for us to get data from you so that we can incorporate any premiums or higher costs with organic production:
        - Single value data and value across years (for uncertainty).
        - Types of crops, especially different types of rice.
        - Duck clubs can be included as a "type of crop" if there are lands associated with inndated wetlands.
- Question (John): Will we get to critique the model? When? Some thoughts – price of rice has changed since 2016, the drought has changed prices. We do not grow dry beans, sunflowers. We grow a lot of tomatoes.
    - Response (Josue): We did not bring the interactive simulation today, but we could use feedback on (1) whether yield response curves look accurate and (2) if there is inundation data to add into the model.
    - Response (Josh): We should schedule a 1:1 meeting to understand the details for populating this model. The model is indexed against a base case, but we need base case conditions. This model needs to be adjusted for amount and frequency of inundation before we show economic benefits/impact.
- Comment (Maya): Yes, we should have individual meetings to review (1) historic farming patterns and (2) convention versus organic rice market analysis. Afterwards we should meet again together as a group for input.
- Question (Helen): Can we provide a list of data needs for the landowners ahead of time?
    - Response (Josue): Yes.
    - Comment (Josh): Note - we can use different years as benchmarks, but we need to be consistent across properties for that year. Factors that can be impacted by years include: price of rice, yield, production costs, returns.
- Question (Josh): John, you mentioned in a previous meeting that there are costs related to recovering from inundation. Do you have this secondary cost information? Do you use multipliers for personnel, equipment time, etc.?
    - Response (John): We have planning information. In the bypass you are limited. Organic rice is grown by contract. We try to grow all of our rice on the west side, some on the east side due to water availability. We try to have all rice unless price of tomatoes go up. Lots of demand for tomatoes right now. Price will go up next year so we may have more tomatoes.

        - If we know it will be inundated, we will figure out where to plant based on draining patterns. Plant toward crop insurance deadline of June 1.
        - Effort is in pulling sand out of canals/other structures.
        - Ideal place for fish projects because you can build/manage in flood areas. Even in dry areas you can't work in March/April because it could flood.
        - Usually say rice cost is 1250 for Cal Rose rice. Rents are 300-400 for rice.
- Comment (Mike): 1:1 meetings with Goose Club and Dos Rios will help you get to a range.
- Comment (Dane): Similar for us at Goose Club – silt fills ditches/pipes, erodes fields. We do a lot of leveling each year. Economics change every year based on cost of fertilizer, fuel, machinery, labor, buyers. Lot of variables that might make an generalized annual cost difficult – can we look at year to year?
    - Response (Josue): Yes we will want to meet with you to understand appropriate ranges so that we can build appropriate levers in the system.
    - Response (Josh): Additionally, it would be good to know situations where you would never take the action that we are modeling, or if there are typical rotations we can capture.
- Question (Josh): What is not being captured? We have corn, dry beans, rice, sunflower, tomato in crop type.
    - Response (Mike): Wild rice.
- Comment (Josh): It would be better for the database to have data for 2018 through 2020.
    - Response (Josh): We need to correct our starting point analysis. If you have information on what was planted each year in each parcel, that would be helpful.
- Comment (Chris): Ideally John and Mike have electronic maps of what has been planed year to year, but we also need data on a field by field basis as well.
    - Response (Josue): We need to define proper unit of analysis – we are analyzing what is happening with the ranch and the whole bypass, so field-level data is ideal, though we do not predict things from field to field.. Everything in the end is aggregated.
- Comment (Mike): Topographic changes at a field-level is important across the bypass – elevation gradients, etc. Generally planting occurs from east to west to follow the water level decline.
    - Response (Josue): Yes the hydrodynamics are important.
- Question: Do we have data on duck clubs and other non-crop uses?
    - Response (Mike): Lumberg does not use property for duck club.
    - Response (Dane): We do not have a duck club.
- Question (Josue): Is this CDFW area rented?
    - Response: It is a wildlife area.
    - Response (Josue): we will not put this in the model even if it generates some kind of cost.
- Question (Chris): John and Maya – We are using information from the hydrodynamic model for the ag economics model. Are there assumptions on the last day wet with respond to how long it takes to dry everything out? Can we carry forward assumptions from Yolo or are there differences between Yolo and Sutter?
    - Response (John): We should distribute the Yolo County report.

Action Items

- Josue to share information and assumptions to prepare for individual meetings.
    - Presentation slides.
    - Land use information assumptions and database export.

    - Yield Response Curves
    - Data requirements memo.
    - Simulations with effects of inundation, water shortage, and price change.
- John Brennan to distribute comments/Yolo Bypass Report.