

NCSRP Benchmarking Project – Guidelines for data collection at state level

GENERAL GUIDELINES

1. We want to collect on-farm data that portray well the range of SOYBEAN yield and management across producer soybean fields
2. For states where irrigated acreage accounts for < 10% of irrigated area, ONLY consider dryland crops (all states except for NE and KS).
3. First step is to identify major soybean producing regions within your state, based on crop harvested areas and agro-climatic zones (no more than 4-5 areas per state). Avoid collecting data from only one region or from few clusters of producer fields located in small geographic areas.
4. Once targeted soybean producing regions are defined, we want to collect producer data from a sample of fields within each of these regions.
5. Avoid collecting all the data from a cluster of producer fields located very close to each other.
6. In year two of this project, **we will collect data from fields planted with soybean in 2016.**
7. There is space to fill out information for four soybean fields in each year. Print double-side surveys so that everything is on one page.
8. **Mail survey does not work well and we highly discourage this option. The best way is face-to-face interviews; interviewers can be students, crop consultants, and of course, yourself! If you are not the person interviewing producers, make sure to share these guidelines with the person collecting the data.**
9. Do your best to RANDOMLY select producers. We do NOT want to ONLY surveys the most progressive producers or those that are consistently behind the rest. **In few words, make sure that your sample of surveyed producers are REPRESENTATIVE of the range of producers in your local area.**
10. We are collecting producer field data. Avoid fields with experimental-, demonstration-, and variety-testing plots. Field strips do not count as fields.
11. We define a producer soybean field as the piece of land planted with soybean that received uniform management (e.g., planting date, variety choice, and plant density) and combine-harvested. Avoid fields planted with 2+ varieties, or fields with portions planted at very different dates (more than 4-day difference). Only exception to the 'field' definition provided above is a field that receives variable fertilizer application, which will be accepted for this study. In the case of an irrigated field, do NOT consider its field corner(s) as an individual dryland field.
12. Avoid 'outliers', that is, fields that are clearly not representative of the range of management practices within the state, for example, drip-irrigated fields, fields that follow 'organic' practices, March plantings, and fields following atypical crop sequences.
13. How to survey producers? Same concept of representativeness here. We want to have an idea of the RANGE of yield and practices followed by a given producer. So, a good approach is to start requesting data from the fields that were planted the earliest and latest. Then, ask for the data from the highest- and lowest-yield



fields. Then, you can keep asking about fields with irrigation versus those that are dryland or those with conventional versus no-till or with contrasting maturity groups. Avoid fields with extremely low yield due to unusual weather hazards, such as flooding, hail, or frost (but, please, include fields that suffered severe drought or insect/disease damage!).

14. How to trust the producer-reported data? It is almost impossible to run a complete quality control on the reported data but if there are unusual values in the filled forms, the farmers should be contacted and provided information double-checked. Copies of yield maps or elevator tickets are always welcome but, again, most farmers won't have these available or are not willing to share them, so, we will ultimately have to trust on the provided data. From our experience from past projects, data tend to be accurate and we have published some studies that showed how the producer-data agreed reasonably well when compared against independently collected data.
15. It is unlikely, but be aware that few of the producers that you will contact may have already run across the survey. If that is the case, ask if he/she has already filled the survey out and, if yes, just say sorry and look for another producer!
16. Finally, **timing is of essence for successful data collection**. Best time of the year to survey producers is after harvest and before planting. January and February are the best months and most data should be collected during these months. **Deadline for collecting 2016 producer soybean data is March 31st, 2017. Deadline for sending the filled surveys to Shawn is April 30.**

DETAILED EXPLANATION OF SURVEY FORM

Producer name and mailing address (TOP OF THE SURVEY FORM): we are requesting these data just to follow-up in year 2 and 3 of the project. Remind producers that collected data will be kept confidential. It's OK if a producer refuses to report his/her name and mailing address as long as he/she is willing provide us with the field location

Field location: Field geographic location is VERY important to retrieve associated soil/climate data. So, make sure that the producer indicates the legal description of his/her field and draws the boundaries of the field in the diagram shown in the survey. Alternatively, you can ask for (i) GPS coordinates of the field centroid or (ii) county and nearest road intersection and the location of the field relative to the intersection (SE, SW, NE, NW).

Water regime & field size (acres): both irrigated and dryland field are acceptable. Field can be pivot-irrigated, surface-irrigated, or dryland. Indicate field size in acres (which will help us to find the field location, especially for small dryland fields). Pivot-irrigated field corners do not count as dryland fields.

Field drainage: in case the field has a drainage system.

Inches of irrigated water (inches): total inches of irrigation water applied during the growing season. Most farmers will be able to retrieve this (or at least have a



reasonable estimate) based on flowmeters, hours of operations, pump capacity, electricity bills, etc. Ignore this row for dryland fields.

Soybean yield (bu/ac): entire-field yield, at a moisture content near to the commercial standard of 13%. It's OK if the farmer wants to exclude field corners to calculate the yield for pivot-irrigated fields, but this will not change too much the yield value relative to the figure estimated for the whole field including corners.

Lowest / Highest yields (bu/ac): we want to know how representative the yields reported by the producers are. Hence, here we are requesting producers to provide us with the range of soybean yields achieved across all his/her fields in the same year and for the same water regime. For example, if a producer is filling out the survey for a 2015 irrigated soybean field, he/she should report here the lowest and highest soybean yield achieved across all his/her irrigated soybean fields in 2015. In contrast, if a producer is filling out the survey for a 2014 dryland soybean field, he/she should report here the lowest and highest soybean yield achieved across all his/her dryland soybean fields in 2014.

Planting date (mm-dd-yyyy): Avoid fields with portions planted at very different dates (more than 5-day difference).

Variety name (brand & number): If producer does not recall the exact number, brand and MG should be sufficient. Avoid fields planted in strips with 2+ varieties.

Seeding rate (seeds/acre): just make sure that farmer reports the actual seeding rate and not the targeted plant density

Row spacing (inches): the two typical responses will be 15 or 30 inches.

Seed treatment (YES/NO & product): Some farmers will recall the product name (great!), a few will remember the ingredients (fungicide, inoculum, etc.) which you can write down if product name cannot be recalled, and many other farmers will only remember will sat 'whatever was in the bag'. If the latter, just report YES.

Tillage after prior crop & date(s): if you can't find the specific tillage method amongst the provided options (disk, chisel, vertical, no-till, strip-till, ridge-till), feel free to write down whatever tillage method the producer has used. Don't forget to the time(s) of tillage.

Prior crop in this field & residue harvested or grazed: in most cases, soybean will follow corn or (in a few cases) popcorn or wheat or sorghum. Avoid inclusion of fields in atypical crop sequences or organic management. Please, report if previous crop residue was grazed or harvested.

Any (non-starter) fertilizer after prior crop, rate, and timing: Do NOT include starter here. Fertilizer applied to previous corn crop does NOT count. Fertilizer nutrient applications should be reported as pounds of elemental nutrient (lbs of N, S, Zn, Mg, Ca) or oxide (P₂O₅ and K₂O) per acre. Make sure that producers do NOT report pounds of product. Please, note that the survey requests pounds of phosphate (P₂O₅) and potash (K₂O) per acre because producer will tend to remember P and K inputs as oxides instead of elemental nutrients. Always check

how P and K are being reported and convert to oxides if needed ($P \div 0.437$) and K ($K \div 0.83$). Finally, do not forget to report date of application.

Any starter fertilizer (YES/NO) and which nutrients: this row refers to small fertilizer nutrient applications at planting time. No need to specify rate but, please, indicate which nutrients were applied.

Lime (L) and manure (M) and timing: just make sure that manure or lime was applied after the prior crop harvest. Manure or lime applied BEFORE prior crop harvest does not count. No need to specify type of manure, rates, or N%.

Herbicide program (pre-emergent or post-emergent or both pre and post emergent): keep it simple. No need to indicate products or rates. If mechanical control was used in some fields, please, write it down. If there were problems with herbicide-resistant weeds that affected final yield, please, report it in the last row of the survey (“Any significant yield loss...”)

Any in-season fungicide (F) and/or insecticide (I) (yes/no): this field refers to foliar (canopy) fungicide/insecticide applied typically around flowering and pod setting in soybean.

Soy Cyst Nematodes (SCN; yes/no/I do not know): This is tricky one. Most farmers will say no, but they have never tested their fields for SCN. If that is the case, they should report ‘I don’t know’ as indicated in the survey.

Iron chlorosis deficiency (ICD; yes/no): Another tricky one. Producer may report YES even when the area with ICD is one or few small patches. If that is the case, the answer should be NO. Only report YES when a significant ($>1/4?$) portion of the field was affected.

Any significant yield loss due to other factors (insects, diseases, weeds, frost, hail, flood, and lodging): Farmers will tend to report yield losses due to incidence of biotic stresses (insects, weeds, diseases) or adverse weather factors (hail, frost, and lodging) even when a relatively small portion of the field was affected. Hence, make sure that these yield-reducing factors are reported ONLY when a significant portion of the field has been affected ($>1/3$ of the field) and yield has been reduced significantly (by more than 5%).

QUESTIONS? I will be happy to answer them!

CALL ME: 608-262-7975

OR SEND ME AN E-MAIL: spconley@wisc.edu

