

Smart Farming: Using data to make on-farm decisions

Which should I choose? (I.C.)

What are the factors farmers consider when making crop choices?

Crop (corn/wheat/soybean/alfalfa, etc) choice factors:

1. Which crops grow the best in the fields?
2. Which crops grow the best in the region?
3. Which crops are readily marketable in the region?
4. Which crops' harvestable goods have the highest demand?
5. Which crops have the greater ROI (return on investment) for the region?
6. Which crops are best adapted for the local weather? (temperature and precipitation)
7. Which crop was grown in the field the previous year?

Variety (soybean or wheat)/Hybrid (corn) factors to consider:

1. How quickly will the seed emerge (germinate)?
2. How tall will the resulting plant be?
3. How does the resulting plant stand throughout the year (wind, rain, drought, etc)?
4. How strong are the resulting plant's roots, stalk and stem?
5. How is the resulting plant affected by various insects and diseases?
6. How will the resulting plant perform in various soil types?
7. How well does the resulting plant perform under stress from excess water or drought?
8. How well does the resulting plant's yield stack up to others? (see reference below)
9. How long will it take the resulting plant to mature for harvest? (regional weather)
10. How does the resulting plant react to various populations and row spacings?
11. What weed pressures do the fields have?

The questions above are some of the aspects that farmers use to help them make choices about crops and the varieties of those crops they choose to plant.

Relative Maturity of Soybeans

Most growing regions in the USA use a Relative Maturity (RM) system to describe soybean maturity. For example, in North Dakota, soybeans with a RM of 00 are adapted for the most northern parts of the state, while group zero (0) and the early group one (1) are adapted for the southern part of the state. Each cultivar is classified with a 0 to 9 decimal number following the group number. A cultivar designated as 0.1 could be grown in the northern part of the 0 (zero) RM zone, while a 0.9 is a cultivar that can be grown in the southern part of the 0 maturity zone.

<https://ndawn.ndsu.nodak.edu/help-soybean-growing-degree-days.html>

1. Which RM group would grow best where you live?



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Independent sites and the USDA conduct field trials to determine which varieties will produce the most yield. See the data for two regions in Ohio here: <http://www.firstseedtests.com/soybean-2015.shtml> (check here for updated information: <http://www.firstseedtests.com/>)

1. Which location is closest to you?
2. Which seed would you choose? What is your first priority for choosing?

Look at the USDA yield results for RM II – IV tested in Ohio.
USDA report: THE UNIFORM SOYBEAN TESTS NORTHERN REGION 2016 . See the full report at: <https://www.ars.usda.gov/ARUserFiles/50200500/ust/2016.pdf>

3. Which variety would you choose to plant?
4. What are the factors you would like to have more information about?

There are many factors beyond the hybrid or variety to consider: GMO v. non-GMO, seed coating to protect the seed through germination and emergence, etc. Once a variety or hybrid is chosen, there are many other choices to be made: row spacings and population seeding rates can determine different yields, and various inputs are required or may be optional. Fertilizer amounts and types differ between corn and soybeans, and pesticides/herbicides may be needed.

*There is no decision allowed for this simulation, due to the difficulties of anticipating all the different varieties.