

Assessing Fieldwork Capacity in Your State

Terry Griffin (twgiffin@ksu.edu) – K-State Department of Agricultural Economics
April 2024

Farm operators rely upon weather probabilities especially how many hours that machinery can enter the field to conduct fieldwork when making long-term decisions such as equipping cropping acreage. The Fieldwork Capacity Tool is an interactive website that empowers farm operators to make informed machinery decisions for their cropping acreage and location. Numerous scenarios can be evaluated for each state, but too many to concisely list here; therefore, the interactive tool was developed to empower users when making decisions. Farmers, equipment dealers, and agricultural lenders are encouraged to interact with the Fieldwork Capacity Tool for their specific location, timing, and conditions to estimate the number of days (and hours and acres) of fieldwork that can be conducted in their scenario.

Long-term probabilities were estimated from weekly days suitable for fieldwork data obtained from USDA National Agricultural Statistics Service (NASS). The lower 48 US states tend to have data available since 1994 via USDA Quick Stats (USDA, 2017); however, a few states have data accessible for much longer time periods from the USDA NASS Field Offices. Days suitable for fieldwork data for several states including Kansas go back to at least 1980.

Interacting with the Fieldwork Capacity Tool

Viewing the interactive Fieldwork Capacity Tool on a laptop or smartphone, the number of days that farmers can expect to conduct fieldwork are plotted at 20th, 50th, and 80th percentiles are displayed on top row for the selected state. The 80th percentile is interpreted as when 8 out of 10 years have fewer days and 2 out of 10 years have more days suitable for fieldwork. Likewise, the 20th percentile is when 2 out of 10 years have fewer days and 8 out of 10 years have more days. The 50th percentile is the median and can be thought of as half the years will have more than the indicated number of days suitable. Risk averse farm operators tend to equip farms assuming fieldwork probabilities in the 15th to 45th percentiles since planning for greater than 50th percentile would not likely be able to complete fieldwork during anticipated timing during at least half of years. Shaded background areas represent the lowest and highest observed days ever reported.

The two charts on the second row allow users to evaluate days suitable from a selected date range of one or more consecutive weeks representing the desired field activity in their selected state. The selected date ranges may represent planting for specific crop(s) in selected state or other field activities. Hovering the cursor over charts and a map reveals pop-up details. The same data are presented as histogram and scatterplot. Both charts indicate the 15th to 45th percentile for number of fieldwork days for entire date range between green and blue lines. Rational decision makers are likely to choose a probability between 15th to 45th percentile highlighted by green shaded area when



evaluating machinery management for given acreage. The scatterplot includes a trendline that indicates the number of fieldwork days are increasing, decreasing, or remaining the same over the last few decades.

The map of the lower 48 states represents changes in fieldwork days during the selected date range. At the bottom of the interactive tool, users can download raw data by clicking “Download data” or save their settings such that they can send it to another person by clicking “Bookmark”.

Practical Example

As a hypothetical example, three farmers, one each from Illinois, Kansas, and Missouri, recently expanded acreage and are interested in trading a 12-row planter for a 24-row planter, but uncertain regarding number of fieldwork days during corn planting times.

Kansas Example

Assuming the user selects weeks ending April 23 to May 14, on average has 17 fieldwork days with a low of 8 days in 1999 and a high of 24.5 days in 1989. The second chart, a histogram, indicates how many years out of the previous 42 years that a certain number of days suitable occurred. The scatterplot provides the same information but as total number of fieldwork days during each year. In this scenario, the trendline is essentially flat indicating no significant changes in the number of fieldwork days over time. Green lines represent 15th percentile and blue lines represent average as median for selected date ranges.

Summary

The interactive Fieldwork Capacity Tool can be accessed on AgManager.info in the Department of Agricultural Economics at Kansas State University.

<https://agmanager.info/farm-management/machinery/days-suitable-fieldwork-all-states>

Footnote

It should be noted that more or fewer days suitable for fieldwork does not directly relate to higher or lower crop yields, only the probability of entering the field to conduct fieldwork during that specific time period.

References

USDA National Agricultural Statistics Service (2017). NASS - Quick Stats. USDA National Agricultural Statistics Service. <https://data.nal.usda.gov/dataset/nass-quick-stats>. Accessed 2023-04-04.

For more information about this publication and others, visit AgManager.info.

K-State Agricultural Economics | 342 Waters Hall, Manhattan, KS 66506-4011 | 785.532.1504

www.ageconomics.k-state.edu

Copyright 2024: AgManager.info and K-State Department of Agricultural Economics

