

Days Suitable for Planting in Kansas

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<http://www.agmanager.info/KFMA/Newsletters/Research/PlantingDays.pdf>

Information on Kansas weather and workday probabilities is important to whole-farm management. Knowledge of workday probabilities, specifically the number of days expected to conduct planting and harvest fieldwork, impacts machinery investment decisions and crop acreage allocation. Beginning in 2015, a new project tracked the weekly days suitable for fieldwork (DSFW) and plotted current data against long-term trends. The visual display of how 2015 compared to trends is useful to understand the importance of adequate machinery capacity with respect to given acreage for each crop. Planting, harvesting, and other field operations must be conducted in a timely manner to minimize yield losses, however sufficient equipment capacity to handle these field operations under weather uncertainty is not costless. The nine U.S. Department of Agriculture Crop Reporting Districts where data are reported is displayed in Figure 1 (note that the USDA districts do not exactly match the Kansas Farm Management Association (KFMA) districts of the same name).

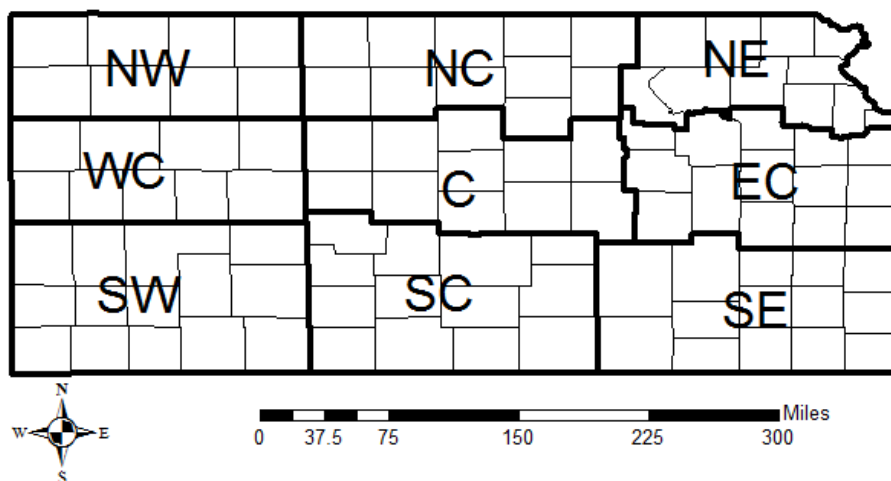


Figure 1. Map of the nine USDA crop reporting districts

The 2015 DSFW project created 10 graphs available on the [AgManager.info](http://www.AgManager.info) website, one graph for each USDA Crop Reporting Districts in addition to the statewide graph of Kansas. Graphs were created in Google Docs then embedded into the website such that the information is interactive as the user hovers the mouse cursor over the lines or points. As an example the statewide DSFW are presented in Figure 2. For updated interactive graphs for each Crop Reporting District, visit <http://www.agmanager.info/farmmgmt/machinery/fwd.asp>.



Figure 2. Days Suitable for Fieldwork in Kansas compared to trends as of May 31, 2015

In addition to comparing weekly 2015 observations to long-term trends, the total number of DSFW for the 2015 planting season was compared to the same time periods from previous years. The USDA National Agricultural Statistics Service (NASS) (2010) report the ‘most active’ dates to plant Kansas crops (Table 1). When two or more spring planting periods overlap, crop acreage ‘competes’ for farm equipment. It should be noted that these dates are not necessarily the best timing for highest yields, the dates are simply when farmers are most actively conducting these field operations.

Table 1. Most active planting dates for selected crops in Kansas

	Start	End
Corn	15-Apr	15-May
Grain Sorghum	15-May	20-Jun
Soybeans	15-May	20-Jun
Winter Wheat	15-Sep	20-Oct

Source: USDA NASS (2010) Agricultural Handbook Number 628

The total number of days suitable during the ‘most active’ planting dates for corn grain sorghum, and soybean over the last 33 years by Crop Reporting District can be found in Griffin and Ciampitti (2015) at https://webapp.agron.ksu.edu/agr_social/eu_article.throck?article_id=519. They point out that grain sorghum and soybean have similar ‘most active’ planting dates in Kansas while corn typically does not overlap with the other two. In Kansas, the ‘most active’ planting dates for Corn is April 15 to May 15 (USDA NASS, 2010) (Table 1). The four week period during the corn planting season (weeks 18 to 21) usually have 17.9 days (out of 28) suitable (Figure 3). The minimum number of days since 1996 was 13.9 in 1999 (Figure 3) while there were 15 days in 2015 during this time period. Although the fewest number of days during this time period were not observed in 2015, the nearly 3 days fewer than typical years had considerable impact on planting progress and potential corn yields. Corn planting progress was at 86% as of May 31, down from the average 96% (USDA NASS).

**Days Suitable in Kansas during
'most active' corn planting (1996-2013)**

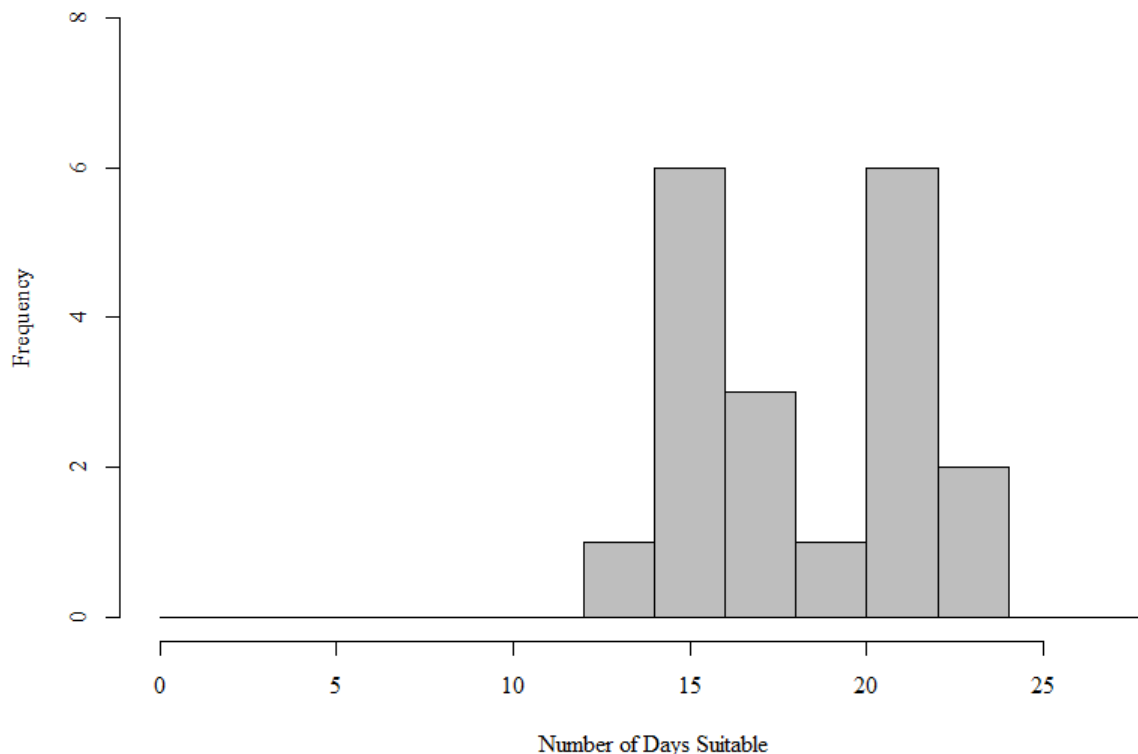


Figure 3. Distribution of days suitable during ‘most active’ corn planting periods in Kansas

The farm management implication of DSFW variability is the uncertainty of being able to plant in a timely manner. When planting is delayed, crop penalties may be incurred. Equipment sufficient to plant entire acreage in years with very few DSFW is costly. A balance between accepting potential yield penalties and being sufficiently equipped in a bad year must be made. Rather than to consider the

number of good days that a planter can operate, it may be more useful to consider the number of hours that the planter can be operated. It can be assumed that a planter can be used 12 hours per good working day (although with automated guidance and adequate human capital the equipment may be able to be operated nearly 24 hours a day). Given that the typical year has 17.9 days suitable during the four-week period for planting corn, this equates to 214.8 hours (17.9 days multiplied by 12 hours per day). However in 2015 when only 15 days were suitable to plant during this time period, only 180 hours were available (15 days multiplied by 12 hours per day). Even though 180 hours are sufficient to plant acreage typically farmed by Kansas farmers, the nearly 35 hours less in 2015 may have lasting impact on yields and profitability.

Knowledge of expected workday probabilities have become more important as farmers allocate acreage from one crop to another. In Kansas, corn and soybean acreage have been increasing while grain sorghum and wheat acreage have fallen (Figure 4). Since the early 1980's, the acreage of corn on the largest KFMA member farms has increased, but remains at zero for the smaller KFMA member farms (Figure 5). As the number of acres of corn have increased at the farm level, the competition for farm equipment between crops have changed; and the knowledge regarding suitable days to plant each of these competing crops is necessary for whole-farm decision making.

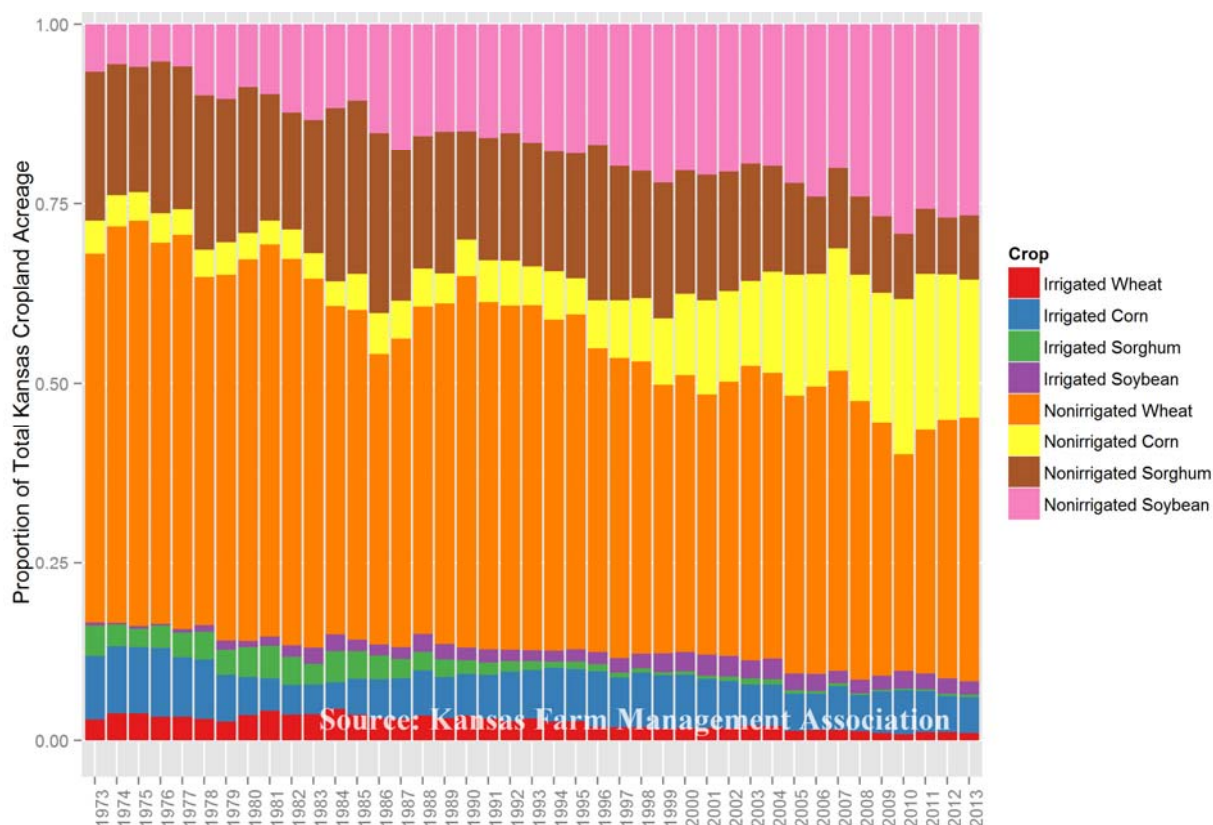


Figure 4. Crop Acreage Allocation in Kansas, KFMA databank

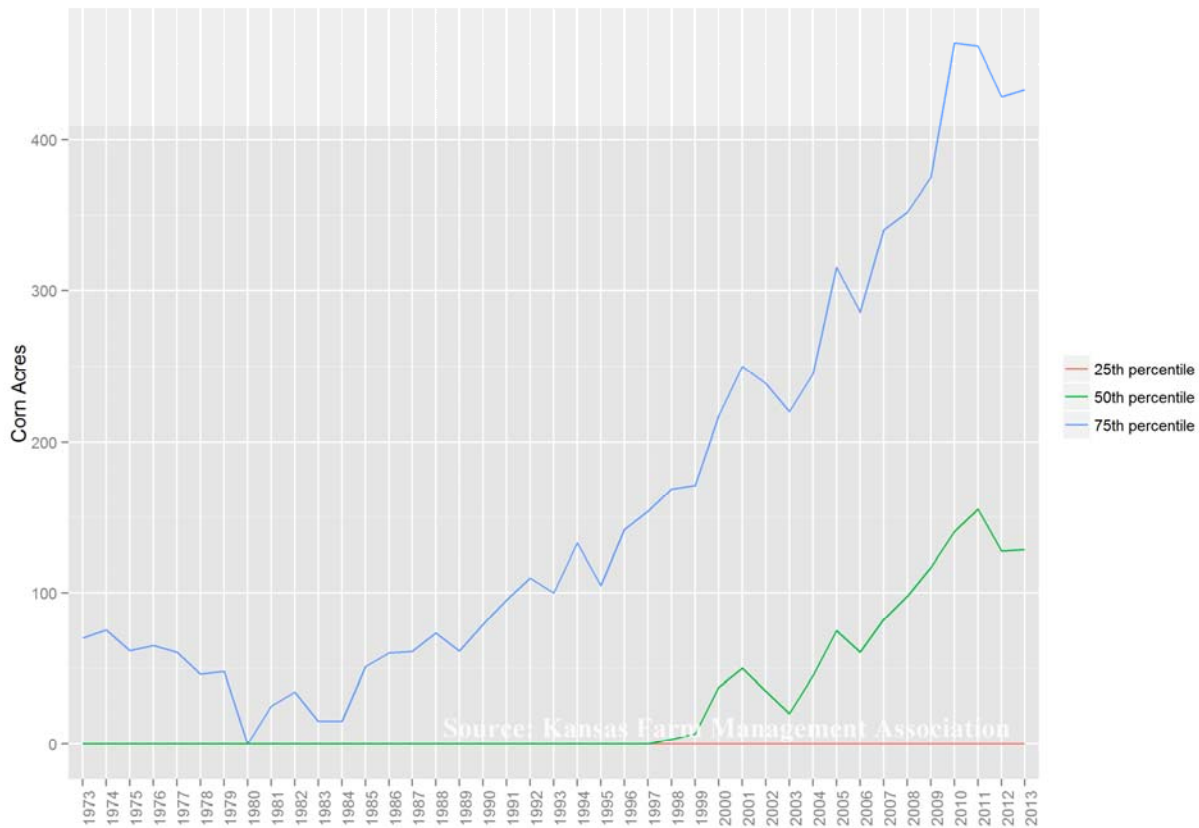


Figure 5. Farm-level corn acreage over time, KFMA databank

The current project of tracking 2015 days suitable for fieldwork will continue throughout the summer and trough harvest season this fall. Weekly updates are usually provided via Twitter from [@Space Plowboy](#) and [@AgManagerInfo](#). For more information contact Terry Griffin at twgriffin@ksu.edu or 501.249.6360, or visit the webpage <http://www.agmanager.info/farmmgmt/machinery/fwd.asp>.

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