

Part 1. Graphic inquisition

Figure 1

The annual incidence of diabetes (age-adjusted)

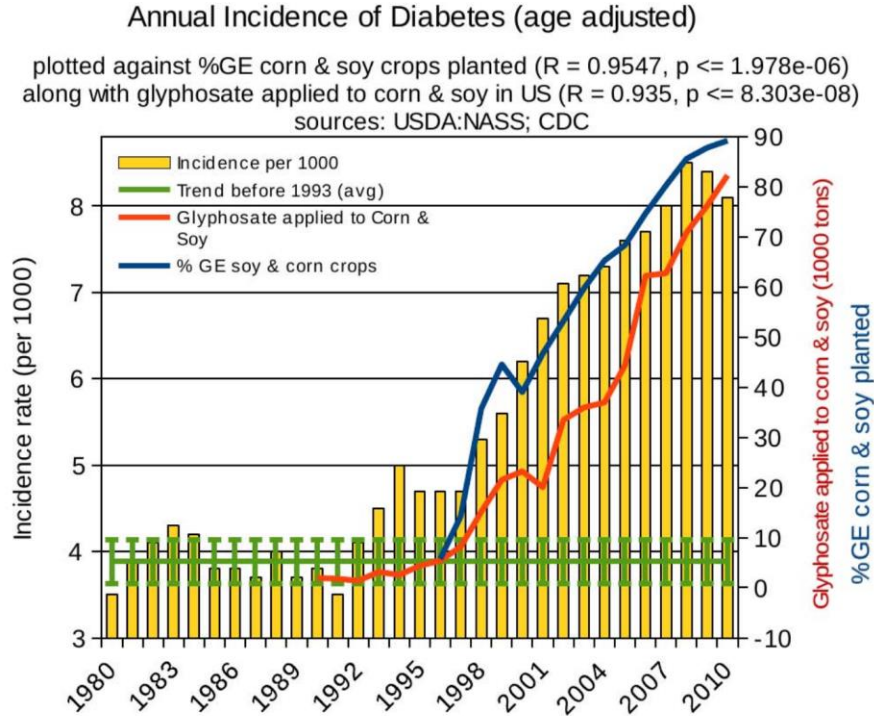


Figure 14. Correlation between age-adjusted diabetes incidence and glyphosate applications and percentage of US corn and soy crops that are GE.

Note: Extracted from Swanson, N. L., Leu, A., Abrahamson, J., & Wallet, B. (2014). Genetically engineered crops, glyphosate, and the deterioration of health in the United States of America.

Journal of Organic Systems, 9(2).

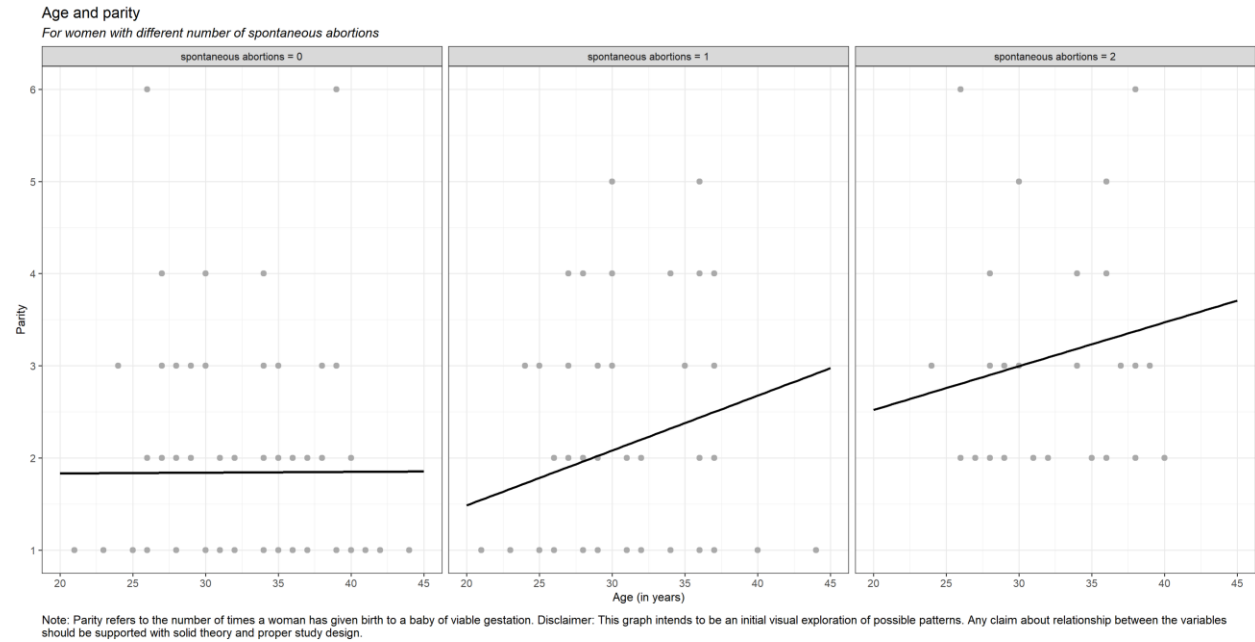
[https://www.farmlandbirds.net/sites/default/files/JOS_Volume-9_Number-2_Nov_2014-](https://www.farmlandbirds.net/sites/default/files/JOS_Volume-9_Number-2_Nov_2014-Swanson-et-al.pdf)

[Swanson-et-al.pdf](https://www.farmlandbirds.net/sites/default/files/JOS_Volume-9_Number-2_Nov_2014-Swanson-et-al.pdf)

Gestalt Simplicity: There is too much visual stimulation (given by color, shapes and # of elements). Which makes the shapes not simple. Figure-ground: the larger (ground) element is the yellow bars, and maybe the blue and red lines can be understood as figures as they are smaller. For the green lines, is hard to decide if it's figure or ground, probably ground (?) because is as wide as the X-axis. There is also a lack of closure of the blue and red lines. **Decoding** Graph is hard to decode because it contains too much and poorly organized information. Last value in Y-axis in the left is missing (it can be guessed that is 9, but not certain). There are insufficient grid lines to follow the values of the bars, blue line, and read line. Hence, it's hard to make comparisons between the elements. **Data-ink ratio** Number of colors is more than the essential to convey the message. Chartjunk: the small labels inside the graph –which communicates the meaning of the colors- could be outside because it takes away the attention that should be directed to the elements. The labels of the Y-axis on the right repeat what the small label says. Green lines are so thick that obstruct some bar's peaks. Grid lines could be softer to draw attention to the elements. **Integrity** Y-axis on the left doesn't start at 0, which tweaks the perception of the sizes of the bars and lines, making differences look bigger. The Y-axis on the right has been modified to a not feasible -10 value (a % of application - % of glyphosate and, % of GE cannot possibly be 0). This Y-axis modification places the blue line towards the peaks of the bars, somehow visually implying that correlation=causation. **Annotation & stand-alone readability** More annotations than essential are present. However, the green lines seem to express confidence intervals (?) but is not clear, perhaps it could have been represented with a 'position on a scale' line. Is not stated if R is the correlation coefficient and which type (pearson, spearman..). These things diminishes readability. Perhaps, small multiples with less chartjunk could help to clarify the message and comparisons targeted by this graphs.

Part 2. Graphic design

Figure 2



Argumentation for the design Since my purpose was to visualize possible patterns of two variables across groups (third variable) of women with different numbers of spontaneous abortions, I first created a scatterplot for each group (to observe the location of the research units) and then I added a black line that summarizes the possible pattern in each group. **Gestalt Similarity:** color, shape, and size make the dots look alike, so they can be perceived as part of a group for each facet. Also, the color, shape, and size of the black lines help to group and compare them. **Figure-ground:** dots are filling a bigger area (than the lines), so they can be perceived as ‘ground’. The smaller element across the facets are the lines (compare to the group of dots), so they can be perceived as ‘figure’. **Decoding** The selected elements (dots and straight lines) are easy enough for decoding and effective for people to understand the differences. Facets visually help to appreciate that we are dealing with three different groups. Grids serve as references for data points and are equally aligned in all facets. Both scales are consistent (axis X is in line with possible values). The three facets are placed horizontally to facilitate comparison.

Data-ink ratio The 2 colors used are strictly the necessary amount to represent the graph’s message. Grids are soft color and background panel is white to direct the attention towards the dots and black lines. **Integrity** There are two dimensions in both the graph and the data (which is also easier to read). The identical scales and elements used (dots and lines) in all facets + labeling scales, prevents distorting the differences between the facets. The note highlights that visual exploration should not be understood as a ‘relationship’. **Stand-alone readability.** The annotations and complete labeling of the 3 variables help to unveil possible patterns between age and parity, and compare them across women with different numbers of spontaneous abortions. Overall, the target pattern is standing out by its visualization through a dark line. Is possible to understand the intended comparison by looking at the graph.