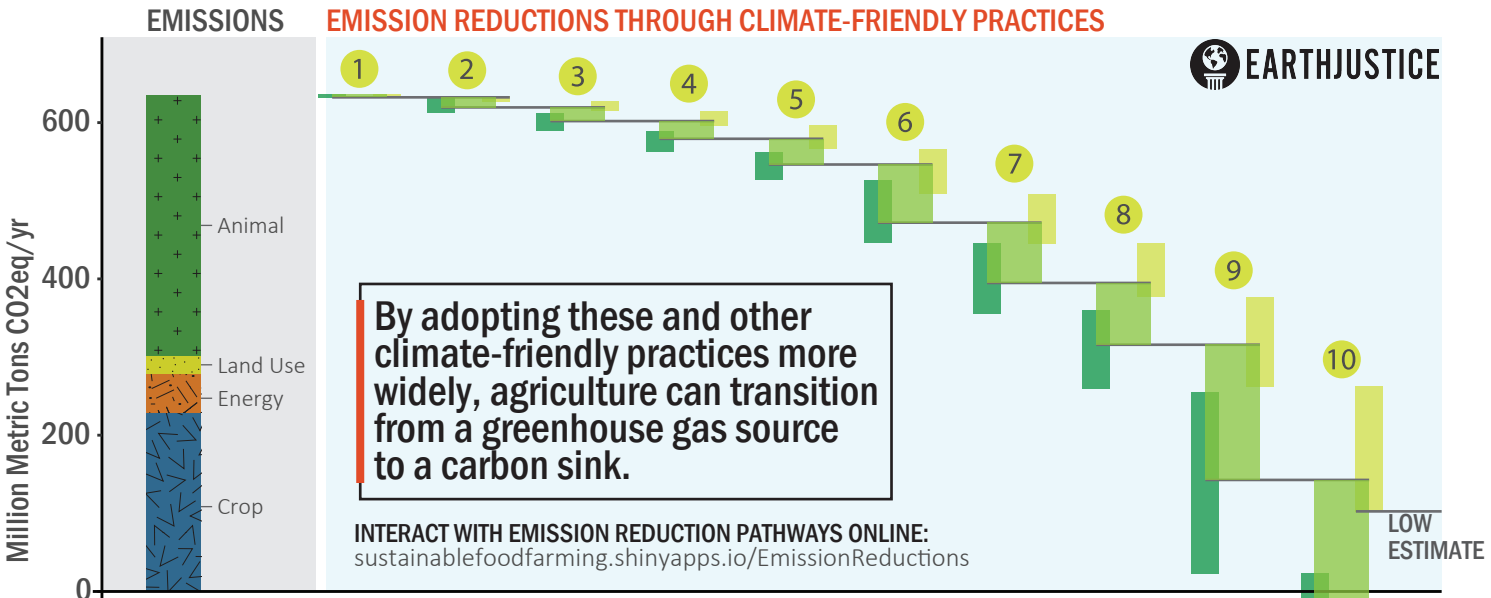
Widespread adoption of climate-friendly practices can achieve net-zero emissions, as demonstrated in the graphic below.

The **EMISSIONS** bar on the left shows current total greenhouse gas emissions from agriculture, based on US EPA data. These emissions are largely (1) crop-related emissions, including fertilization and cultivation, (2) animal-related emissions, such as manure management and enteric fermentation from cattle, (3) energy use on farms and ranches, and (4) emissions from the conversion of land for agriculture.

The **REDUCTIONS** bars on the right show estimates of how much emissions can be reduced by adoption of climate-friendly practices on relevant applicable lands in the US. These estimates account for the fact that some practices have high impact but can only be applied on limited acreage, while others with modest impacts may be more widely applied. This *waterfall* chart starts the bar of the emission reduction from each additional practice at the bottom of the previous bar, thus showing how they add up and have a cumulative impact. As can be seen, using just these ten practices — and there are many others available to farmers and ranchers — the total reductions are larger than the current total emissions.

Of course, the real world is complicated, so the emission reductions possible from each practice can vary. The chart shows the average emissions with the largest central bar, and also shows alternative waterfall charts, assuming for each practice either the least or greatest possible per acre impact.



1. Establishing **Riparian Buffers**, or narrow zones of vegetation along stream banks, can help store C in plants and soils, reduce runoff of nutrients, and improve water quality.

2. Improving **Nutrient Management** to optimize the rate, method and timing of fertilization can reduce emissions of the potent GHG N_2O. *Less than 25% of row crop acreage use conservation nutrient management principles currently.*

3. Establishing **Windbreaks**, or rows of trees or shrubs between crops, can increases C storage in plants and soils and reduce soil erosion.

4. Prescribed Grazing to reduce overgrazing can improve grassland productivity and reduce soil degradation.

5. Reducing Tillage by limiting the intensity and frequency of soil tillage can reduce GHG emissions from disturbance and reduce energy use. *Currently 26% of U.S. acreage is no-till.*

6. Conservation Crop Rotations, or planned sequences of crops on the same land, can increase soil organic matter accumulation and reduce soil erosion. *Currently adopted on 11% of cropland acres.*

7. Cover Crops, or seasonal vegetation not grown for harvest, can increase C inputs into soil, reduce nutrient runoff and suppress disease pressures. *Currently practiced on 4% of cropland acres.*

8. Organic Soil Amendments can reduce reliance on synthetic fertilizers and increase soil C accumulation.

9. Silvopasture, or the establishment of trees and shrubs in forageland, to allow for integrated grazing and tree growth on the same land can increase C sequestration in vegetation.

10. Alley Cropping, or integrating trees and shrubs with horticultural crops, can increase C sequestration in trees and shrubs and reduce runoff and erosion.

Estimates are derived by scaling emission reduction estimates from the National Resources Conservation Service COMET Planner by maximum applicable area. The net impact is determined by the estimated effect on carbon sequestration as well as the potential applicability of the practice across national crop acreage.