The Gauss Seidel method immediately uses the next known values for x as soon as they are known. This causes Gauss Seidel method to converge much faster than the Jacobian method. The two methods are not always guaranteed to converge for any matrix, but a diagonally dominant matrix is known to be a sufficient condition to allow them to converge. Thus, diagonally dominant matrices are commonly used to test these algorithms.

<http://mathfaculty.fullerton.edu/mathews/n2003/GaussSeidelMod.html>

<https://www3.nd.edu/~zxu2/acms40390F12/Lec-7.3.pdf>