Mary D Shepherd* (msheprd@nwmissouri.edu). Defining an “Optimal” Cross-Stitching Method.

This work extends the “use the least amount of thread” work of Barbara Ashton and Kevin Dove to the “preferred” type of stitch on the back of the fabric where all stitches on the back are vertical. In other words, no horizontal stitches on the back are allowed. There is a “double row” idea here—each row now has a direction so there is an even/odd type behavior noted. Some of the regions Ashton and Dove showed were stitchable with the minimum amount of thread are not allowed when only vertical stitches on the back are allowed, but others that were not discussed in their work (they gave necessary but not sufficient conditions) by their method are natural results here. In addition, it is possible to assign a type of measure to the “badness” of non-vertical stitches on the back so that one can discuss optimal stitching patterns for regions other than those that can be stitched with only vertical stitches on the back. Other less traditional cross-stitch patterns will also be discussed. (Received September 05, 2013)