GOOD PHOTOGRAPHY AIDS SOIL SURVEY

Malvern “Jake” Jacobson¹

The progressive soil survey of Clay County, Minnesota is using color IR transparencies and corresponding black and white internegatives. This photography was available for most areas of the county surveyed to date.

The initial photography was supplied during 1974 at a 1:40,000 scale. Because of field conditions related to wetness and cultural practices, considerable variations in detail and signature resulted. This coupled with a scale half the size of mapping field sheets limited the accuracy of interpretations. During the spring of 1975 a joining area of Clay County was flown. Close attention and coordination of field conditions and flight time was obtained for this photography. These photos were supplied at a 1:20,000 scale, the scale of mapping and publication.

Soil scientists in the Clay County survey party have a number of observations related to this photography:

First—The detail on photos often exaggerates soil differences. Exaggerated detail, however, is much more desirable than little or no detail. It is relatively easy in a given area to determine significance of detail. On photographs, with little or no visible detail, delineations are usually less precise and mapping requires more time. This is especially true on nearly level landscapes where soils have less relationship to slope and elevation.

Second—There is a relationship of signature shown on this photography and kinds of soils materials. For example, areas of silty soils will look different from soils formed in very fine sand and these in turn will commonly have more uniform signature than soils with a higher content of fine sand.

Third—The composition of mapping units can be evaluated with considerably more accuracy when using this combination of the color IR transparency and its internegative.

In working with a few areas only panchromatic photos of the original field sheets were available. Here, considerably more ground control is needed to separate defined mapping units and draw accurate delineations. It is also questionable that even with the additional time and effort we produce the quality of survey possible with good photography.

The University of Minnesota Agricultural Experiment Station with Dr. R. Rust and P. Robert, a graduate student working with remote sensing, has made the major contributions to providing this photography and in assisting with its use and interpretation. The remaining portion of Clay County is to be flown the spring of 1976. This will make quality photography available for the complete Clay County Survey.

In summary, the use of improved photography has assisted soil scientists in Clay County to making a more accurate soil survey. It has also contributed to increased and more efficient production so that, despite flooding and undesirable conditions for mapping, this soil survey is considerably ahead of schedule.

¹From the Minnesota Soil Classifiers Chronicle, December 1975.