



Natural Resources Conservation Service
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Yield Goal Estimates for Nutrient Management Planning

Nutrient Management Notes

Question: In a Comprehensive Nutrient Management Plan (CNMP) or Nutrient Management Plan (NMP) do we use our Revised Universal Soil Loss Equation (RUSLE2) yields from the electronic Field Office Technical Guide (eFOTG) or the county average plus 10%?

Answer:

First some clarification, you will need two separate yield numbers to complete a CNMP. RUSLE2 uses a "yield estimate" to estimate the risk of soil erosion. A "yield goal" is used to make agronomic decisions including nutrient management. Additionally, you may base each number on a different soil in that field.

"Yield Estimate" for Risk Assessment (RUSLE2 and Phosphorus Index)

For resource risk assessments use the eFOTG crop yield estimate for the dominant, critical soil in the field (see [Choosing the Planning Area of a Field by "Dominant Critical Area"](#) Iowa Tech Note 29, 2008) to estimate the average annual soil erosion rates in RUSLE2. Then use this erosion estimate in the Phosphorus Index to estimate the risk of phosphorus delivery to nearby surface water.

"Yield Goal" for Agronomic Decisions

The 590 Nutrient Management standard states that nutrient management recommendations should be based on "realistic yield goals for the crops." [PM 1268: Establishing Realistic Yields](#) (1986) provides guidance to produce a precise estimate. However, it is outdated as the "yield goal" is no longer being used for the Iowa State University nitrogen recommendations.

P & K recommendations are, generally, based on broad soil test categories to recognize the uncertainty due to variability within the field and the variable growing conditions. The yield goal is used along with the average nutrient concentrations in harvested grain or biomass to estimate P and K removal rates. This is then used to estimate the fertilizer application rates needed to maintain the soil test P & K levels particularly when soil tests are optimum. These removal rates are also used to determine maximum allowable manure applications on fields with a high or very high risk of P transport as determined by the P-Index. In this case the CNMP or NMP will also stipulate phosphorus risk reduction practices.

For our purpose here, the "yield goal" is not a goal in the traditional sense of what we would like to produce in that field. Rather it is a reasonable estimate of prevailing average yield in a field or section of field using past data with, perhaps, an adjustment to account for management changes which could improve yield. Consistent with PM 1268 and the use of the estimate for P & K application rates, two simplified methods to determine a yield goal are described below.

1. The eFOTG crop yield estimate + 10% is an appropriate yield goal. To find the eFOTG crop yield estimate, go to [eFOTG](#), <county>, Section II, Soils Information, Soil Survey Area, <county>, Soils Tables, CSRs and Non-Irrigated Row Crop Yields by Map Unit. The eFOTG crop yields utilize the National Agricultural Statistics Service (NASS) 5-year county average yields and adjusts them using the soil's Corn Suitability Rating (CSR) to provide a yield estimate. 10% is added for the yield goal to account for

potential improvements in management and genetics. Choose the soil that best represents the field, probably the predominant soil by area. The producer may choose a different soil or combination of soils in the field, based on their experience, to use for their agronomic decisions.

2. Producers may also use their own yield records to establish a field's average yield. Add 10% to a multi-year moving average to determine the yield goal. Use two or more years of data for continuous cropping systems such as continuous corn. For rotations use three, four, or more years as needed to adequately represent the field. Extreme outliers from, for example, droughts or disease can be ignored.

As noted in the 590 standard, other credible sources of yield estimates can be used including local research, yield data on similar soils using similar cropping systems, and industry data for new crops and varieties. Use these yields on an interim basis until better data is available.

Document and justify the data and method used in the plan's notes.