OBJECTIVE: Precision Nutrient Management with Deep Placement is a precision approach to nutrient management, plant nutrition and reducing potential water quality impacts by the placement of phosphorus fertilizers below the soil surface. The management of all applied fertilizers will be implemented based on a written plan that addresses the 4 R’s (source, placement, timing, and rate) to the level of the Ohio nutrient management standard (code 590). It focuses on a precision application of commercial fertilizer only where they are needed for economic and optimal plant nutrient needs and the placement of all phosphorus fertilizers below the soil surface.

DESCRIPTION: Application of fertilizers is based on a written Nutrient Management Plan (NMP). The NMP will utilize a nutrient budget that incorporates current soil test results, yield goals, nutrient needs of the crops in rotation, and the site specific risk of nutrient loss to determine the 4R’s over small sub-field management units. The use of Variable Rate Application Technology (VRT) will be utilize to implement fertility prescriptions of lime, phosphorus, and potassium on the sub-field management units.

PLANNING: Nutrient Management Plans (NMP) can be developed by a consultant, a farm cooperative agronomist, CCA of the producer’s choosing, or the plan may have already been developed as a CAP 104 in a previous EQIP contract. NMPs must meet NRCS 590 Statement of Work deliverables. NRCS can provide the “template” to serve as the framework for the written NMP.

PLAN SPECIFICATIONS: Soil tests used in planning are to be no older than 2 years and geo-referenced using either grids or zone sampling techniques. For grid sampling one test cannot represent more than 6 acres and no more than 12 acres if a zone sampling system is used. Soil fertility, soil types, cropping history, and crop management practices should be taken into consideration when delineating the zones and soil sample should represent the average for the entire zone. Interpolation of soil test values and recommendation should not be used with a zone sampling system. A blanket fertilizer application rate within each zone is required. For more information on grid vs zone sampling and fertilizer application please see OSU C.O.R.N. newsletter 2016-37. New soil samples will be done on a 2 years cycle; every 2 years new soil samples using the same sampling techniques will be taken to refine the source and rate of fertilizer for each sampled area.

Planners need to also incorporate the following requirements into the final plan:

2. Lime, phosphorus and potassium will be applied using Variable Rate Technology.
3. All phosphorus must be placed below the surface (at least 2-3 inches) in a band and/or injected using Variable Rate Technology. Application utilizing a 2x2 band are acceptable however broadcasting of phosphorus and incorporation with tillage does not meet this nutrient management scenario.

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4. Nitrogen rates for corn will not exceed the Economic Threshold model developed by The Ohio State University, or Purdue (request assistance from local extension agent if needed). Nitrogen rates for wheat will not exceed TSFG rates.

5. No commercial nitrogen will be fall applied for a spring planted crops (except incidental nitrogen in fertilizer blends).

6. Urease inhibitors will be applied with UAN and or Urea when it is surface applied in the spring when losses are likely.

7. No nutrients will be surface applied on frozen or snow covered ground, when the top 2 inches of soil are saturated from rainfall or snow melt, and/or when there is a greater than 50% chance of rainfall of more than ½ inch within 24 hours.

8. The supporting practices in the EQIP participants plan must be incorporated into the NMP and the client should provide a copy of their Conservation Plan to the CCA/TSP.

9. Plan shall include provisions for accurate record keeping of all nutrient applications per field (source, rate, timing, placement).

IMPLEMENTATION: Once approved, the producer will apply all nutrients according to the specifications and schedules contained in the Precision Nutrient Management Plan.