



## East-Central and Central Minnesota Management Practice Considerations for Nitrogen and Phosphorus

### Nitrogen Management Practices

- Adjust nitrogen rate according to University of Minnesota Guidelines and nitrogen provided by previous crops and manure applications. Total nitrogen rate should include any nitrogen supplied in a starter, in a weed and feed program, and contributions from phosphate fertilizers such as MAP and DAP.
- Use a soil nitrate test where appropriate.
- Do not apply fertilizers containing nitrogen including MAP and DAP to frozen ground.
- Plan nitrogen application timing to achieve high efficiency of nitrogen use on coarse-textured (sandy) soils
  1. Do not apply fertilizer containing nitrogen in the fall
  2. Application of nitrogen in a sidedress or split application program is preferred for corn and edible beans. Use a nitrification inhibitor with early sidedressed nitrogen on labeled crops
  3. Spring preplant application with a nitrification inhibitor is acceptable.
  4. Single sidedress applications of anhydrous ammonia or urea early in the growing season are acceptable.

### Phosphorus Management Practices

- On fields testing high in phosphorus, apply manure at rates which satisfy crop phosphorus needs (recommended University of Minnesota rates or crop phosphorus removal) instead of crop nitrogen needs when possible. This will prevent long-term buildup.
- Subsurface band or row apply commercial phosphorus fertilizer.
- Immediately incorporate broadcast commercial phosphorus fertilizer.
- Control soil losses and runoff to levels considered safe for the soil resource; control to lower levels when fields have very high to excessive soil test phosphorus levels
  1. Control sheet and rill losses by installing conservation practices including conservation tillage, contour farming, strip cropping, terraces and cover crops.
  2. Control ephemeral erosion by installing water and sediment control basins, waterways and diversions.

### Manure Application Considerations

- Use a cover crop for summer applied manure to fallow ground or early harvested crops.
- Apply manure to:
  1. All available acres
  2. Land that is the furthest from surface waters
  3. The flattest ground
  4. Fields with the least amount of runoff and erosion
  5. Fields testing lowest in phosphorus
- Avoid manure applications when precipitation causing runoff is likely within 24 hours.
- Inject or incorporate manure applications within 24 hours whenever possible.
- Avoid applications when ground is frozen, snow covered or actively thawing.
- Consider agronomic, nutritional and managerial practices which reduce the amount of nitrogen and phosphorus excreted by animals including:
  1. Using high quality protein sources
  2. Feeding low protein, amino acid supplemented diets
  3. Avoiding excessive overages of dietary phosphorus
  4. Balancing diets on an available phosphorus basis
  5. Using feed ingredients that possess highly available phosphorus