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## 4R BEST MANAGEMENT PRACTICES FOR NITROGEN FERTILIZER

(Right Rate, Right Time and Right Place)

1. Apply nitrogen in the spring as a pre-plant or split/side-dress.
2. Determine nitrogen rate recommendations using **MRTN**, aiming for optimal economic rates.
3. Adjust nitrogen application rates when corn follows forage legumes.
4. When the plan is to side-dress nitrogen fertilizer, apply some nitrogen before or at planting to promote early corn growth.
5. Calibrate nitrogen application equipment, including rate, knife variation and spread pattern before applying fertilizer.
6. Conduct in-season nitrogen applications by the silking/tassel stage.
7. Split-apply nitrogen, pre-plant or starter plus side-dress, especially on coarse textured soils or soils with poor internal drainage.
8. Use the late spring soil nitrate test to adjust nitrogen application rates.
9. Utilize local field-based nitrogen research results that are most relevant to your soil and crop management system.
10. Employ precision ag tools to optimize nitrogen fertilizer rates, timing and placement.

Sources:

Iowa State University: **Site Specific 4R Nutrient Management Planning, Nitrogen**

International Plant Nutrition Institute: **Nitrogen Notes**; The Fertilizer Institute: **4R Educational Modules**