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Mr. Wayne Bogovich
National Agricultural Engineer
Conservation Engineering Division
Department of Agriculture
Natural Resources Conservation Service
Room 6136, South Building
1400 Independence Avenue, SW
Washington, DC 20250

RE: Comments on Draft Nutrient Management Standard (Code 590)

Dear Mr. Bogovich:

Thank you for the opportunity to submit comments on the proposed changes to the Nutrient Management (Code 590) conservation practice standard.

Texas Cattle Feeders Association (TCFA) represents cattle feeders in Texas, New Mexico and Oklahoma—an area that markets almost 30% of the nation's fed beef every year.

TCFA appreciates the opportunity to submit these comments on proposed changes to the Nutrient Management (Code 590) conservation practice standard in the National Handbook of Conservation Practices. Generally, TCFA is very concerned about the content of the proposed 590 standard changes. As NRCS is well aware, the 590 standard will be used by the EPA and many state regulatory agencies for nutrient management planning, so it is essential that NRCS gets it right with regard to the content of the standard. One of the overarching concerns is the fact that the proposed changes have taken on a regulatory tone. In the past, the 590 Standard has always been an important nutrient planning tool for cattle producers. It was never, however, designed to be a regulation. TCFA urges the NRCS to continue to treat it as a planning tool, not a regulation.

Over the past 15 years, we have worked in close coordination with NRCS at the federal and state levels to implement protocols to carefully evaluate and determine appropriate phosphorus application rates on feedyard land application areas. The 'Phosphorus Index' approach has worked well and it is discouraging to see NRCS propose to revert back to a system of setting arbitrary cut-off levels based only on soil phosphorus levels. The Phosphorus Index takes into account several factors dealing with the fields where manure or effluent are to be applied and the ability, or lack thereof, for runoff from those fields to reach a fresh waterbody. TCFA is hopeful that NRCS will continue to recognize the need for flexibility in nutrient management planning using science based decision-support tools.

TCFA believes the use of animal manure and biosolids as fertilizers and readily available organic-matter-builders should be encouraged, promoted and incentivized by the NRCS, instead of regulated in such a way that would prevent their application on many crop and grazing lands throughout the US. Placing burdensome requirements and prohibitions on their use will have the unfortunate effects of increasing the stockpiling of manure, discouraging farmer applications, and increasing the fertilization of fields with expensive commercial fertilizers.

Some of the issues that cause TCFA great concern with the proposed 590 standard include, but are not limited to, the following:

- It is inappropriate to include an arbitrary cut-off level for soil phosphorus in the 590 standard. Instead, it is critical to the viability of the animal agriculture industry that the standard retain and encourage states to implement effective risk-based assessments for P. The P Index provides this risk-based assessment by evaluating scientifically the ***source and transport*** issues for each field. As currently drafted, a 10X soil test P level is arbitrary and is not correlated to water quality concerns as evidenced by the fact that it is ONLY a ***source-based*** threshold and does not encompass the critical second half of a risk assessment – ***transport*** - which is designed to protect water quality. An arbitrary cut-off level for P application without consideration of environmental impact will prevent the land application of manure on many soils throughout the US, and will devastate the livestock industry.

- Potassium is abundant in many soil types across the US. In areas where manure or commercial potassium has been applied, there are many soils that will exceed the 10X soil potassium level proposed in the 590 standard. As proposed, an arbitrary cut-off level of 10X for potassium is not based on science, will prevent the land application of manure on many soils throughout the US, and will devastate the livestock industry.

- Similarly, the following prohibitions on the land application of manure would have a devastating impact on the livestock industry:

    - "To frozen and/or snow covered soils" – In some areas of the country, application to frozen and/or snow covered soils is necessary and essential to provide for proper manure and wastewater management. TCFA agrees that appropriate management practices need to be implemented; however, the key word is "management" and Code 590 should not prohibit this practice.

    - "During seasons of high runoff potential" – This provision is not defined and will place an unnecessary burden on producers to determine when these "seasons" exist. Even then, manure and wastewater application are day-to-day management decisions and cannot be scheduled by the Farmer's Almanac.

    - "During periods of winter dormancy" – Again, this provision is not defined and would restrict application on fields/crops that are currently permitted by state permitting authorities to receive manure and/or wastewater. Proper application during winter dormancy, with appropriate management practices in place, may in fact be the best time to apply nutrients to allow for mineralization to occur in advance of the active growing season.

    - "When the top two inches of soil are saturated…" – If incorrectly interpreted by regulatory personnel or field staff, this provision could prevent the application of all wastewater by any means of surface application. For example, it is common for the top two inches of soil to be saturated during application of wastewater using a center pivot irrigation system.

- Regarding the "Phosphorus Application Criteria:"

    - The proposed 590 standard would require the "PI risk assessment shall be based on the annual soil loss value associated with the crop interval including the manure application." This is a heavy lift for producers and an expensive proposal. Essentially, this provision requires re-calculation of the water and wind loss calculations for every manure application. In fact, many of the crop rotations, tillage practices, etc, remain unchanged from year-to-year, or only experience minor adjustments. To re-run all soil loss equations every year is excessive, expensive, and unnecessary.

    - The draft standard also pre-determines the phosphorus application rate to be "equal to the recommended phosphorus application, or estimated phosphorus removal in harvested plant biomass…" Here again, NRCS already has in place the tools necessary to make these decisions based on a scientific assessment instead of arbitrary cut-offs -- the Phosphorus Index. The Phosphorus Index system works well in most States, and its use is critical to the livestock industry. If there are states that cause NRCS concern, then NRCS should address those concerns individually and not devastate the entire livestock industry for the transgressions of a few states. The critical issue here is that in fields that have received even moderate amounts of manure over the past several years, the laboratory recommendation for phosphorus will be "ZERO" and the crop removal rate will be something in the range of 20-80 lbs of P2O5. In this situation, a beef cattle manure application rate would be 2-3 tons of manure per acre. This is not even a feasible application rate for manure spreaders. Conversely, allowing the current phosphorus index system to work would allow the land application of manure under certain circumstances. If the Phosphorus Index rating is low, manure would be applied at nitrogen rates. If the Phosphorus Index rating is high, manure should be applied at rates that are some multiple of the crop phosphorus requirement or removal (0.5x, 1x, 1.5x or 2x). Such an analysis and ability to land apply manure as long as the science-based phosphorus index determines land application is appropriate has been and always will be critical to the livestock industry.

Finally, TCFA is wondering whether it is NRCS's intention to allow individual states to petition NRCS for a variance from adherence to the national 590 standard as is currently the case, or must states adhere to a new standard regardless of unique state circumstances? TCFA urges NRCS to continue to allow such variances.

TCFA's section-by-section comments are listed below. Each TCFA comment refers to the section directly above it.

DEFINITION
Managing the source, timing, amount (rate), and placement (method of application) of plant nutrients and soil amendments.

TCFA COMMENT: The Conservation Practice Standard for Nutrient Management Code 590 is part of the Field Office Technical "Guide" and, as such, has always been considered a guideline, not a regulation. TCFA strongly urges NRCS to continue treating the document as a guideline since applying a rigid one-size-fits-all approach to nutrient management at agriculture operations is inappropriate and, in many cases, impossible to achieve. In an effort to clarify that the 590 standard is a guideline and not a regulation, TCFA urges NRCS to add the words "A guideline for" at the beginning of the above sentence just before the words "managing the source . . ."

TCFA COMMENT: As NRCS knows, not all land practices include the conservation of nutrients as a goal, especially if the land practice is the land application of phosphorus (P) and nitrogen (N), by permit or manure management. Sometimes the best use of the land may be the maximum application of P and N, as long as there is minimal negative effect on the environment or land. For many years, livestock producers have implemented and relied on a phosphorus index approach for evaluation of risk potential. To clarify this important point, TCFA urges NRCS to add the words "for the intended use of the land" after the word "amendments" at the end of the definition sentence above.

PURPOSE

- To budget, supply, and conserve nutrients for plant production.

TCFA COMMENT: Same comment as above, the intended/best use of the land may not involve conservation of nutrients if the use is for the land application of P and N or manure management. Therefore, TCFA urges NRCS to delete the word "conserve" from the sentence above.

- To minimize agricultural nonpoint source pollution of surface and ground water resources.
- To properly utilize manure or organic by-products as a plant nutrient source.

TCFA COMMENT: Why does this proposed nutrient management standard only include manure and organic by-products within its scope? There are many other nutrient sources that affect nutrient values on the land including green manures, legume credits, crop residues, compost, waste water, synthetic fertilizer, and irrigation water, among others. Why are these other nutrient sources omitted from the scope of the proposed 590 standard? Because the 590 standard addresses nutrient management, it seems only appropriate that ALL nutrients affecting plant production and the environment should be considered and included within the scope of the 590 standard.

- To protect air quality by reducing odors, nitrogen emissions (ammonia, oxides of nitrogen and nitrous oxide) and the formation of atmospheric particulates.

TCFA COMMENT: TCFA believes the application of NRCS's 590 standard to protecting air quality is inappropriate and should be deleted. Air quality is strictly regulated under the Clean Air Act as required by Congress. Congress did not authorize NRCS to regulate air quality. Therefore, TCFA strongly urges NRCS to leave air quality regulation to the US Environmental Protection Agency.

- To maintain or improve the physical, chemical and biological condition of soil.

CONDITIONS WHERE PRACTICE APPLIES

This practice applies to all lands where plant nutrients and soil amendments are applied.

TCFA COMMENT: In keeping with our comments above, TCFA does not believe it is appropriate to apply nutrient conservation to all lands. Therefore, TCFA recommends deleting the word "all" between the words "to" and "lands" in the sentence above. For the same reason, TCFA also recommends replacing the word "are" with "may be" between the words "amendments" and "applied." In sum, TCFA recommends that the final sentence should be: "This practice applies to lands where plant nutrients and soil amendments may be applied."

CRITERIA

General Criteria Applicable to All Purposes

TCFA COMMENT: The 590 Standard is supposed to be a guideline for agriculture producers, not a regulation. In keeping with its purpose, therefore, TCFA supports moving the entire "CRITERIA" section into the "CONSIDERATIONS" section.

A nutrient budget for nitrogen, phosphorus, and potassium shall be developed that considers all potential sources of nutrients including, but not limited to, green manures, legume credits, crop residues, compost, animal manure, organic by-products, waste water, commercial fertilizer, and irrigation water.

TCFA COMMENT: Again, in keeping with our comments above, TCFA recommends replacing the word "budget" in the sentence above with "program" in an effort to clarify that conservation of nutrients is not always the goal for land use. Instead, the 590 standard is intended to be a developed program that considers the overall use of nutrients which may include loss through P fixing or N denitrification for some land uses. This would be an appropriate use of land, for example, for non-soluble storage of P, or N loss through denitrification. In addition, TCFA urges NRCS to replace the word "shall" in the sentence above with "may" since the 590 standard is supposed to be a guideline, not a regulation.

TCFA COMMENT: NRCS's decision to include potassium (K) as a nutrient to be included in the 590 standard is perplexing since K is not an environmental concern. While it is true that K is found in high levels in most soils, except in those soils containing sand, 90-98 percent of soil K is tightly bound and unavailable to plants. In fact, only 1 to 2 percent of the K in soil is plant available. The remaining K in soil acts as a reserve to replenish K taken up by plants or lost from the soil solution. K availability to plants is highest under warm, moist conditions in soils that are well aerated with a neutral or slightly acidic pH. Therefore, the inclusion of K in the nutrient equation would likely have the effect of prohibiting the repeat application of manure to land in western environments where K levels in soils are high and the conditions mentioned above are rare. Is such a prohibition NRCS's goal? If not, TCFA urges NRCS to delete K from consideration in the 590 standard since it is not an environmental concern.

Nutrient applications shall be based on realistic yield goals. For new crops or varieties, industry demonstrated yield and nutrient utilization information may be used until Land Grant University, or other refereed published information is available.

TCFA COMMENT: TCFA believes it is appropriate to base nutrient application on the consideration of more variables than just yield goals. A producer should also be able to take into account the history of the site and industry standard, as long as the environment is protected. In addition, TCFA urges NRCS to replace the word "shall" in the sentence above with "may" since the 590 standard is supposed to be a guideline, not a regulation. To clarify these important points, TCFA recommends that the sentence above be changed to the following: "Nutrient applications may be based on history of the site, industry standard, or yields goals. For new crops or varieties, industry demonstrated yield and nutrient utilization information can always be used in place of Land Grant University recommendations, or other refereed published information is available."

Plans for nutrient management shall specify the source, timing, amount, and placement of nutrients on each field or conservation management unit (CMU).

TCFA COMMENT: TCFA strongly recommends that the word "shall specify" in the above sentence be replaced by the word "may outline." The word "shall" is very problematic for cattle facilities, for example, which are designed to catch runoff from a large drainage area and are required by law to dewater the runoff control structure as soon as dewatering is possible. Under such circumstances, it is impossible to specify the source, timing, and amount of nutrients to be placed on each field or CMU. In addition, with regard to timing, what timeframe is NRCS talking about here? Are we talking about a season, month, day, minute, something else?

Only those nutrient enhancement products approved or concurred in by the Land Grant University shall be used.

TCFA COMMENT: TCFA urges NRCS to delete the sentence above because the Land Grant University should not be the only entity with the ability to approve or concur on nutrient enhancement. In addition, such a requirement would have the detrimental effect of stymieing production research outside of the Land Grant University setting, including farmer or producer innovation that historically has been critical to technological advancements. How many Land Grant Universities today approve or concur in commercial products? Very few new products are tested at Land Grant Universities because Land Grants don't have adequate funding and the cost of the research has to be paid for by the entity with the new product. Funding is not likely to increase in the coming years. Nutrient enhancement products improve crop efficiency absorption and would seem to be a positive nutrient management tool. If the NRCS were to decide to give the Land Grants this power, what kind of approval process would be put in place? TCFA urges NRCS to ensure that the approval process is not so onerous that innovation is stifled, or that producers are unable to use these tools in a timely manner. Such outcomes would not help producers or the environment.

The rate and placement of applied nitrogen and potassium in starter fertilizer, to avoid salt damage, shall be consistent with Land Grant University recommendations, or industry practice recognized by the Land Grant University.

TCFA COMMENT: TCFA urges NRCS to replace the word "shall" in the sentence above with "may" since the 590 standard is supposed to be a guideline, not a regulation. TCFA also urges NRCS to accept as legitimate other industry practices that may not be formally recognized by the Land Grant University. To clarify that other practices are acceptable, TCFA urges NRCS to delete the words "recognized by the Land Grant University" at the end of the sentence above and, instead, insert the word "accepted" between "or" and "industry." To clarify, a revised sentence containing TCFA's suggested changes would be: "The rate and placement of applied nitrogen and potassium in starter fertilizer, to avoid salt damage, may be consistent with Land Grant University recommendations, or accepted industry practice."

Manure and/or organic by-products shall not be applied where existing phosphorus and potassium levels exceed ten times the critical soil test concentration (the concentration at which no crop response can be expected with the addition of P and K), as established by the Land Grant University for the common crops in the planning area.

TCFA COMMENT: TCFA does not believe there is any justification for limiting the application of nutrients to land based solely on whether P and K levels exceed ten times the critical soil test. This provision appears to require an arbitrary P and K threshold that has no basis in science, and does not necessarily address a true environmental concern. In fact, it would arbitrarily and inexplicably eliminate the need to do a phosphorus risk assessment, and would forbid the application of manure throughout much of the West where K levels are naturally high. The provision is clearly biased against manure and organic byproduct utilization, even in the absence of an environmental concern, and should be deleted from the 590 standard. While there may need to be a reduction in nutrient application at some threshold level on certain soils, that level should reflect the ability of land to absorb the material applied, rather than a blanket prohibition against use. At a minimum, application rates should be based on crop removal rates, instead of eliminating application altogether.

TCFA COMMENT: TCFA implores NRCS throughout this document to allow industry standards to be used when determining soil test concentration and nutrient application rates instead of relying solely on Land Grant Universities for this work. Land Grant Universities generally do not have the personnel and/or resources anymore to give timely responses and in-depth research needed for these types of determinations.

TCFA COMMENT: In an effort to clarify the intent of TCFA's two comments above, TCFA urges NRCS to modify the provision above as follows: "Manure and/or organic by-products may be reduced where existing phosphorus levels exceed ten times the critical soil test concentration (the concentration at which no crop response can be expected with the addition of P and K), as established by the Land Grant University or an industry standard for the common crops in the planning area or industry standard."

On organic operations, the nutrient sources and management shall be consistent with the USDA's National Organic Program.

Areas contained within minimum application setbacks (e.g., sinkholes, wellheads, gullies, ditches, or surface inlets) shall receive nutrients consistent with the setback restrictions.

TCFA COMMENT: Currently, some states allow setback exemptions where controls have been established to protect a sensitive area. TCFA strongly urges NRCS to allow producers to utilize such exemptions when appropriate, and suggests amending the above sentence as follows to reflect this alternative: "Areas contained within minimum application setbacks shall receive nutrients consistent with the setback restrictions or alternative controls protective of the sensitive area."

Potassium shall not be applied in situations where an excess (greater than soil test potassium recommendation) causes nutrient imbalances in crops or forages.

TCFA COMMENT: As explained in detail above, K does not pose an environmental risk and therefore should not be included in the 590 standard. Its inclusion in the 590 standard would mean that manure would not be able to be spread on many soils throughout the West since K soil levels are often naturally above crop demand. In addition, manure nutrients would no longer be able to be used on any soils on which manure has historically been applied. As TCFA pointed out earlier in this comment document, not all land practices include the conservation of nutrients as a goal, especially if the land practice is land application of P, N, or K by permit or manure management. Sometimes the best use of the land may be the maximum application of P, N, and K as long as there is minimal harm to the environment or land. If this requirement becomes final, the result will be an increase in stockpiles of solid manure and increased risk associated with piping wastewater more miles from a feedyard. TCFA urges NRCS to delete this damaging and unnecessary provision from the 590 standard.

Applications of irrigation water shall not increase the risk of nutrient loss to surface and/or ground water.

TCFA COMMENT: How can it be possible that the application of irrigation water would not increase the risk of nutrient loss? How is increase in risk determined? Is it NRCS's goal now to disallow irrigation on any lands on which nutrients are applied? TCFA urges NRCS to delete this unreasonable provision.

Soil, Manure, and Tissue Sampling and Laboratory Analyses (Testing).
Nutrient planning shall be based on current soil, manure, and (where used as supplemental information) tissue test results developed in accordance with Land Grant University guidance, or industry practice, if recognized by the Land Grant University.

TCFA COMMENT: TCFA urges NRCS to delete the requirement that the Land Grant University recognize an industry practice. If an industry practice can provide reasonable data, then it should be recognized and allowed to be used. The days of time-consuming and expensive university testing are over due to very tight budgets at universities. In addition, it's not appropriate or necessary to vet ALL practices to that extent if reasonable data can be produced from industry practices.

Current soil tests are those that are no older than three years, or on an interval recommended by the Land Grant University or required by State code. The area represented by a soil test shall be that acreage recommended by the Land Grant University. Where a CMU is used as the basis for a sampling unit, all acreage in the CMU shall have similar soil characteristics, cropping history, and management practice treatment.

TCFA COMMENT: TCFA urges NRCS to allow industry practice to be taken into consideration when determining the area represented by a soil test, not just Land Grant University recommendations. Industry practice is often at least as good, if not better, than Land Grant University recommendations. At a minimum, the soil test area should be consistent with the field descriptions in an NMP since it does not make sense to require multiple analyses for the same field. It is not practical to recommend multiple application rates for the same field. To clarify, TCFA urges NRCS to change the provision above as follows: "Current soil tests are those that are no older than three years, or on an interval recommended by the Land Grant University or required by State code.

The area represented by a soil test shall be that acreage recommended by the Land Grant University or approved industry practices."

The soil tests shall include analyses pertinent to monitoring or amending the annual nutrient budget, e.g., pH, electrical conductivity (EC) and sodicity where salts are a concern, soil organic matter, nitrogen, phosphorus, potassium, or other nutrients, or follow Land Grant University guidance regarding required analyses.

TCFA COMMENT: TCFA urges NRCS to replace the word "shall" in the sentence above with "may," and replace the word "required" with "recommended" since the 590 standard is supposed to be a guideline, not a regulation.

Soil test analyses shall be performed by laboratories successfully meeting the requirements and performance standards of the North American Proficiency Testing Program (NAPT) under the auspices of the Soil Science Society of America, or Agricultural Laboratory Proficiency Program (ALP), or other State approved program that considers laboratory performance and proficiency to assure accuracy of soil test results.

TCFA COMMENT: TCFA urges NRCS to replace the word "shall" in the sentence above with "may" since the 590 standard is supposed to be a guideline, not a regulation.

Nutrient values of manure and organic by-products, and biosolids shall be determined prior to land application.

TCFA COMMENT: A determination of the release pattern of manure is important when determining application rates since not all nutrients in a sample are plant available immediately – sometimes the release pattern is measured in years. To account for the release pattern of nutrients, TCFA urges NRCS to add the words "and release pattern" after "nutrient values" and before "of manure" in the sentence above so that the sentence will be: "Nutrient values and release patterns of manure and organic by-products, and biosolids shall be determined prior to land application."

Manure analyses shall include, at minimum, total nitrogen, ammonium N, total P or P_2O_5, total K or K_2O, and percent solids, or follow Land Grant University guidance regarding required analyses.

TCFA COMMENT: TCFA urges NRCS to replace the word "required" in the sentence above with "recommended" since the 590 standard is supposed to be a guideline, not a regulation.

Manure, organic by-products, and biosolids samples shall be collected and analyzed at least annually, or more frequently if needed to account for operational changes (feed management, animal type, manure handling strategy, etc.) impacting manure nutrient concentrations. If no operational changes occur, less frequent manure testing is allowable where operations can document a stable level of nutrient concentrations for the preceding three consecutive years.

TCFA COMMENT: TCFA recommends deleting the words "samples," "collected" and "at least" from the sentence above since they are superfluous. TCFA also recommends deleting the words "or more frequently" from the sentence above since it is subjective.

Samples shall be collected, prepared, stored, and shipped, following Land Grant University guidance or industry practice.

TCFA COMMENT: In the interest of clarity, TCFA recommends adding the words "Manure, organic by-products, and biosolids" to the beginning of the sentence above if the intent of the sentence above is specific to manure, organic by-products and biosolids. If not, please be specific about NRCS's intent. TCFA also recommends adding the words "appropriate state agency" between the words "Land Grant University guidance" and "or industry practice" since there may be more than one state agency involved with land use issues in a state. For example, the permitted land application of industrial or municipal wastewaters may be under the jurisdiction of the state's environmental agency. To clarify, TCFA urges NRCS to modify the provision above as follows: "Manure, organic by-products, and biosolids samples shall be collected, prepared, stored, and shipped, following Land Grant University guidance, appropriate state agency, or industry practice."

When planning for new or modified livestock operations, acceptable "book values" recognized by the NRCS (e.g., NRCS Agricultural Waste Management Field Handbook) and/or the Land Grant University, or analyses from similar operations in the geographical area, may be used if they accurately estimate nutrient output from the proposed operation.

Manure testing analyses shall be performed by laboratories successfully meeting the requirements and performance standards of the Manure Testing Laboratory Certification program (MTLCP) under the auspices of the Minnesota Department of Agriculture, or State recognized program that considers laboratory performance and proficiency to assure accurate manure test results.

Nutrient Application Rates. Soil amendments shall be applied, as needed, to adjust soil pH to an adequate level for crop nutrient availability and utilization. Refer to State Land Grant University documentation for guidance.

TCFA COMMENT: TCFA urges NRCS to replace the word "shall" in the sentence above with "may" since the 590 standard is supposed to be a guideline and not a regulation, and because adjusting soil pH can be extremely difficult and cost prohibitive. For example, it would be extremely difficult and cost prohibitive to adjust the pH in any soil with a high pH and a high buffering capacity. The reality and consequence of such a requirement would be the elimination of the fertilization of these types of fields for many years. Is this outcome NRCS's intent? TCFA urges NRCS to remove this requirement.

Planned nutrient application rates shall not exceed Land Grant University recommendations (and/or industry practice when recognized by the university) based on current soil test results, realistic yield goals, environmental impact, and the producer's management capabilities. If the Land Grant University does not provide specific recommendations that meet these criteria, application rates shall be based on approved plans that consider realistic yield goals and associated plant nutrient uptake rates.

TCFA COMMENT: TCFA urges NRCS to delete the requirement that Land Grant Universities recognize an industry practice in the paragraph above for the same reasons as explained in earlier comments. The legitimacy of industry practices stands on its own. Again, as stated in earlier comments, the best use of the land should be considered whenever land applying nutrients since the capacity of the soil to absorb or fix larger amounts of nutrients than plant needs may be an appropriate and needed land use, as long as the environment is protected. In situations where environmental impact is a concern, application rates should be based on current soil test results, soil type, topography, risk of transport, realistic yield goals, etc. since environmental impact would be as minimal as possible. In these situations, subjective criteria like environmental impact or a producer's management capabilities should not be factors. It is for these reasons that TCFA urges NRCS to delete the terms "environmental impact, and the producer's management capabilities" from the paragraph above. TCFA also recommends that NRCS replace the term "producer" with "grower" since not all production from an agricultural site would be produced for agricultural commerce. There are many diverse ways that a crop can be used, such as straw bales for walls in the housing industry, or for various reasons the crop may be harvested but never used, just stored. To clarify these important issues, TCFA urges NRCS to modify the provision above as follows: "Planned nutrient application rates shall not exceed Land Grant University recommendations (and/or industry practice) based on current soil test results, realistic yield goals, environmental impact, land soil capacity, and the grower's management capabilities. If the Land Grant University does not provide specific recommendations that meet these criteria, application rates shall be based on approved plans that consider realistic yield goals and associated plant nutrient uptake rates."

Lower than recommended nutrient application rates are permissible as long as the producer's objectives are met.

TCFA COMMENT: TCFA recommends that NRCS replace the term "producer" with "grower" since not all production from an agricultural site would be produced for agricultural commerce. There are many diverse ways that a crop can be used, such as straw bales for walls in the housing industry, or for various reasons the crop may be harvested but never used, just stored.

Applications of biosolids, starter fertilizers or pop-up fertilizers will be accounted for in the nutrient budget.

Adaptive Nutrient Management
Where adaptive nutrient management protocols and procedures have been adopted by the NRCS with the concurrence of State Land Grant University and State conservation partners, the source, timing, amount, and placement of nutrients can be adjusted from the Land Grant University recommendations. See the NRCS Agronomy Technical Note "On-Farm Field Trials for Adaptive Management" for guidance on acceptable protocols and procedures for on-farm research activities.

TCFA COMMENT: As noted in earlier comments, many state agencies and citizen groups are involved in determining protocols and procedures for land use. Therefore, TCFA recommends adding the words "state regulatory agencies, citizen's groups" after the word "University" and before the word "and" in the first sentence in the paragraph above.

Nutrient Application Timing and Placement. Timing and placement of nutrients shall correspond as closely as possible with plant nutrient uptake (utilization by crop plants), and consider cropping system limitations, soil characteristics, weather conditions, risk assessment results (e.g., leaching index, P index) and field accessibility.

TCFA COMMENT: This requirement, and the detailed bullets that follow below, are impossible for cattle producers to manage or comply with. First, state and federal law requires facilities to catch and contain all precipitation runoff from large drainage areas, and require dewatering of the runoff control structures as soon as soil conditions allow. Second, manure, organic by-products, and biosolids must be applied prior to planting. Since producers would be required by the paragraph above and the detailed bullets below to stockpile manure all year long, the window for spring application in many parts of the country is too short to apply all the manure generated during the previous year prior to field tillage and planting. One TCFA member from Minnesota believes that disallowing the application during times of dormancy or snow cover would enable him to land apply manure only on a couple of days per year. Producers in many other states have the same concern. As NRCS should be aware, applying nutrients to snow-covered and/or frozen ground is not an environmental concern if there is no risk of transport to water. Furthermore, the freezing and slow thawing that normally occurs provides optimal opportunity for absorption into the soil. TCFA urges the NRCS not to ignore these facts when making decisions about the 590 standard. Again, in an effort to resolve this very real and serious problem, TCFA strongly urges NRCS to allow consideration for the intended or best use of the land with regard to land application as long as any possible harm to the environment is minimized and in accordance with industry practice or Land Grant University recommendations. Allowing for the consideration of the intended or best use of the land would allow for manure application during non-crop seasons, including during the wintertime, which is a critical tool for cattle producers in many parts of the country. Otherwise, there will be very few days during the year that manure would be able to be land applied. In an effort to allow for reasonableness, TCFA urges NRCS to delete the paragraph above and detailed bullets below and allow states to decide the best course of action on this issue. At a minimum, TCFA suggests editing the above paragraph as follows to allow for considerations of the intended or best use of the land: "Timing and placement of nutrients shall reasonably correspond, based on the intended or best use of the land, with plant nutrient uptake (utilization by crop plants), and consider cropping system limitations, soil characteristics, weather conditions, risk assessment results (e.g., leaching index, P index) and field accessibility."

Nutrients shall not be surface applied (except under emergency provisions in accordance with State law):

- To frozen and/or snow-covered soils

TCFA COMMENT: As explained in our comment immediately above, totally eliminating a cattle producer's ability to apply manure to frozen or snow-covered soils would put many cattle producers out of business. Is this reality NRCS's intent? TCFA incorporates here our comment immediately above. At a minimum, and in an effort to enable cattle producers to remain in business, TCFA urges NRCS to consider amending this provision as follows: "To frozen and/or snow-covered soils if there is a high risk of transport of nutrients off-site, or a state-approved plan is in place."

- During seasons of high runoff potential

TCFA COMMENT: What are "seasons of high runoff potential?" High runoff potential could occur any day of the year for many operations. TCFA urges NRCS to err on the side of reasonableness and delete this provision.

- During periods of winter dormancy

TCFA COMMENT: Totally eliminating a producer's ability to land apply manure during periods of winter dormancy would put many cattle operations out of business. TCFA incorporates here our comment above under the "Nutrient Application, Timing and Placement" paragraph. TCFA urges NRCS to delete this provision, or amend it to allow a state approved plan to provide guidance on this issue. To clarify the intent of allowing the use of a state approved plan, TCFA urges NRCS to modify the provision above as follows: "During periods of winter dormancy, unless a state approved plan is in place."

- When the top two inches of soil are saturated from rainfall or snow melt, and there is a high risk of transport of nutrients off-site

TCFA COMMENT: TCFA urges NRCS to allow for the possibility that some nutrients may transport offsite, and only place restrictions on the land application of manure if there is a risk that significant amounts of nutrients may be transported off-site. To clarify, TCFA urges NRCS to modify the provision above as follows: "When the top two inches of soil are saturated from rainfall or snow melt, and there is a high risk of transport of significant amounts of nutrients off-site."

Treatment measures shall be planned to address the movement of manure and nutrients to subsurface drainage (tile) and/or surface drained fields.

TCFA COMMENT: TCFA urges NRCS to replace the word "shall" above with "may need to" since the 590 Standard is supposed to be a guideline, not a regulation.

Additional Criteria to Minimize Agricultural Nonpoint Source Pollution of Surface and Groundwater

Current NRCS-approved soil erosion and/or nitrogen and phosphorus risk assessment tools to identify risk and treat the resource concern(s) to meet the planning criteria.

TCFA COMMENT: This statement is very confusing and needs to be reworked. Assuming TCFA understands its intent correctly, TCFA urges NRCS to add "or State" after the words "Current NRCS" in the statement above so that unique state conditions will be taken into account. It is critical that unique state conditions are taken into account throughout this document.

Appropriate nutrient management strategies shall be implemented to maximize nutrient use efficiency. Based on site conditions, one or more of the following nutrient management technologies shall be used:

TCFA COMMENT: TCFA recommends that NRCS delete the word "use" between the words "nutrient" and "efficiency" in the first sentence in the paragraph above because it is superfluous. TCFA also urges NRCS to replace the word "shall" with "may" in the second sentence since the 590 standard is suppose to be a guideline, not a regulation.

- Slow or controlled release fertilizers
- Nitrification inhibitors
- Urease inhibitors
- Nutrient enhancement technologies
- Incorporation within 24 hours
- Injection
- Soil nitrate testing
- Other technologies that minimize surface or ground water resource concerns

Additional Criteria Applicable to Properly Utilize Manure of Organic By-Products as a Plant Nutrient Source.

TCFA COMMENT: Please replace the word "of" above with "or."

Biosolids shall be applied in accordance with USEPA regulations (40 CFR Parts 403 (Pretreatment) and 503 (Biosolids) and other state and/or local regulations regarding the use of biosolids as a nutrient source.

TCFA COMMENT: Is it NRCS's intent to require the pretreatment of manure similar to pretreatment requirements for biosolids by public sewer systems??!! Such a requirement would be unreasonable, unnecessary, and prohibitively expensive. Assuming this is not NRCS's intent, TCFA wishes to clarify that not all biosolids are 403 and 503 regulated. For example, industrial biosolids that are not generated from a surface water treatment system are not under the jurisdiction of 503 regulations and are, instead, appropriately regulated by state or local government. To clarify this important distinction, TCFA urges NRCS to amend the paragraph above in the following way: "Biosolids shall be applied based on state and/or local regulations regarding the use of biosolids as a nutrient source. If biosolids are regulated by USEPA, then 40 CFR Parts 403 (Pretreatment) and 503 (Biosolids) may apply."

Fields receiving animal manures shall be monitored for the accumulation of heavy metals in accordance with Land Grant University guidance and/or State law.

TCFA COMMENT: TCFA recommends that NRCS replace the word "monitored" with "evaluated" to foreclose the possibility that physical testing is required under this provision. An evaluation would be sufficient since if enough physical data and consistency of feeding can be established, monitoring may not be required and either historical data or industry standard information would be appropriate to use. In addition, if state law requires monitoring or something else, then state law will take care of this requirement, and its inclusion in this standard is inappropriate.

Manure and Organic By-Product Nutrient Application Rates. Manure and organic by-product application rates shall be based on nutrient analyses procedures recommended by the Land Grant University.

TCFA COMMENT: TCFA urges NRCS to allow producers to base application rates on not only Land Grant University recommendations, but also on industry standards which are often of superior quality when compared with Land Grant University recommendations which are often out of date. To clarify, TCFA urges NRCS to modify the provision above as follows: "Manure and organic by-product application rates shall be based on nutrient analyses procedures recommended by the Land Grant University or industry standards."

When manures are applied, and soil salinity is a concern, salt concentrations shall be monitored to prevent potential crop damage and/or reduced soil quality.

TCFA COMMENT: This provision appears to be biased against the use of manure as a fertilizer. It could apply to compost, organic by-products, bio-solids and many commercial fertilizer blends. Is it NRCS's intent to eliminate the use of manure on the many soils across the country with high background salt concentrations? TCFA urges NRCS to allow an "evaluation" instead of "monitoring" of these situations so that a producer would have options based on the history of the site.

The total single application of liquid shall not exceed the soil's infiltration or water holding capacity.

TCFA COMMENT: TCFA urges NRCS to allow the use of a risk assessment here. It appears that the single application only takes into consideration the immediate effect of the liquid application and does not consider how the single application may affect the longer term seasonal use of the land. There is no reason not to allow a single application to oversaturate the land as long as there is minimal harm to the environment and the application does not affect the long-term seasonal use of the land. In an effort to allow for these considerations, TCFA urges NRCS to modify the provision above as follows: "The total single application of liquid shall not exceed the soil's infiltration if there is a high risk of transport of nutrients off-site or water holding capacity on a seasonal basis." In addition, what is this requirement based on? The predominant soil type of the field? The most erosive soil type of the field? Is information from the soil survey sufficient for determining a soil's infiltration or water holding capacity?

Nutrient Application Criteria

The planned rates of nitrogen and phosphorus application recorded in the plan shall be determined based on the following guidance:

Nitrogen Application Criteria

Management activities and technologies shall be used that effectively utilize mineralized nitrogen to minimize nitrogen losses through denitrification and ammonia volatilization.

TCFA COMMENT: TCFA is concerned about the fact that the above requirement will effectively end the application of effluent with center pivot sprinklers since ammonia volatilization is increased with this technology. Is this NRCS's intent? Does NRCS have alternative technology available for this purpose that effectively spreads effluent evenly over the surface of the land, and has low environmental risk similar to the center pivot? Such new technology will be required if this provision is finalized. In addition, this provision again gives the reader the impression that conservation of N fertilizers is the only important goal of land use. The reality for manure application to the land is that disposing of excess N may also be an important and legitimate goal. As long as there is no major environmental harm, this goal should be recognized as legitimate by NRCS. TCFA urges NRCS to allow the use of a state approved plan for N application. To clarify, TCFA urges NRCS to modify the provision above as follows: "Management activities and technologies shall be used that effectively utilize mineralized nitrogen to minimize nitrogen losses through denitrification and ammonia volatilization, unless a state approved plan is in place." Finally, because nitrogen loss through denitrification has no impact on the environment TCFA is wondering why this is an issue in the 590 standard?

Manure or organic by-products may be applied on legumes at rates equal to the estimated removal of nitrogen in harvested plant biomass, not to exceed150 lbs available nitrogen per acre per year as calculated by the State approved nutrient planning tool.

TCFA COMMENT: When establishing manure application rates it is not appropriate to take into account only the estimated removal of N in harvested plant biomass since there will never be a balance of application rate equaling crop uptake rate. In addition to the estimated removal of N in harvested plant biomass, it is appropriate to also take into account denitrification and ammonia volatilization, or a state-approved program. In addition, the 150 pound cut-off in the above requirement is an arbitrary and unscientific limit on N application to legume crops. There is no scientific reason for such a limit. The State of Oregon, for example, allows legume uptake rates for land application sites that are double the 150 pounds, and no negative environmental impact has been experienced. Likewise, other states allow different levels with no negative environmental impact. Therefore, TCFA urges NRCS to delete this provision. To clarify, TCFA urges NRCS to modify the provision above as follows: "Manure or organic by-products may be applied on legumes at rates equal to the estimated removal of nitrogen in harvested plant biomass, plus values to account for denitrification and ammonia volatilization; or at a rate allowed in a state approved plan."

When the nutrient management plan is being implemented on a phosphorus basis, manure or organic by-products shall be applied at rates consistent with a phosphorus limited application rate. In such situations, additional nitrogen sources may be needed, such as inorganic nitrogen fertilizer or a leguminous cover crop, to supply the recommended amounts of nitrogen in any given year.

TCFA COMMENT: TCFA urges NRCS to strike the word "shall" and replace it with "may need to" in the paragraph above since the 590 standard is supposed to be a guideline, not a regulation.

Phosphorus Application Criteria

When manures and other organic by-products are applied, the PI risk assessment shall be based on the annual soil loss value associated with the crop interval including the manure application.

TCFA COMMENT: TCFA suggests that this provision should apply to all fertilizers, not just manure. Why discriminate against manure as a nutrient source? In addition, please replace the word "shall" with "may" since the 590 Standard is supposed to be a guideline, not a regulation.

The application of phosphorus applied as manure may be made at a rate equal to the recommended phosphorus application, or estimated phosphorus removal in harvested plant biomass for the crop rotation, or multiple years in the crop sequence at one time. When such applications are made, the application rate shall not exceed acceptable PI risk limitations and shall not exceed the recommended nitrogen application rate during the year of application or harvest cycle.

TCFA COMMENT: TCFA suggests that this provision should apply to all fertilizers, not just manure. Why discriminate against manure as a nutrient source? In addition, it is critical that the recommended P application rate be based on plant available P. Because not all P applied will be plant available and, in fact, a considerable amount of P is fixed in the soil before it is plant available, the application rate must take this into consideration. Plant available P is based on many factors including soil type and historical information that indicates the accurate level of fixing in the soil matrix. "Fixing" is the word used to describe transforming the P into an inorganic form that is not plant available. Regarding the N application rate, TCFA urges NRCS to include the important consideration of the availability of mineralized N when making this determination. TCFA urges NRCS to clarify these important considerations in the above paragraph by modifying it in the following ways: "The application of phosphorus applied as manure may be made at a rate equal to the recommended phosphorus application based on plant available phosphorus, or estimated phosphorus removal in harvested plant biomass for the crop rotation, or multiple years in the crop sequence at one time. When such applications are made, the application rate shall not exceed acceptable PI risk limitations and may not exceed the recommended nitrogen application rate (availability of mineralized nitrogen) during the year of application or harvest cycle."

Additional Criteria to Protect Air Quality by Reducing Odors, Nitrogen Emissions and the Formation of Atmospheric Particulates

In areas with an identified or designated air quality concern caused by odor, nitrogen, sulfur, and/or particulate emissions, the source, timing, amount, and placement of nutrients shall be adjusted to minimize the negative impact of these emissions on the environment and human health. One or more of the following may be used:

- Slow or controlled release fertilizers
- Nitrification inhibitors
- Urease inhibitors
- Nutrient enhancement technologies
- Incorporation within 24 hours
- Injection

TCFA COMMENT: Who identifies or designates an "air quality concern" here? TCFA believes the application of NRCS's 590 standard to protecting air quality is inappropriate and should be deleted. Air quality is strictly regulated under the Clean Air Act as required by Congress, and only EPA and appropriate state agencies have the authority to identify, designate and regulate an air quality concern. If this provision were to stay in the 590 standard, NRCS would be setting up rural agriculture for many years of expensive litigation trying to counter citizen allegations of the existence of an "air quality concern" where none may exist. Congress did not authorize NRCS to regulate air quality and TCFA urges NRCS to leave this very important issue to the EPA and appropriate state agencies to address.

Do not apply poultry litter, manure, or organic by-products of similar dryness/density when application area wind velocity is likely to blow the material off-site.

Additional Criteria to Improve or Maintain the Physical, Chemical and Biological Condition of the Soil to Enhance Soil Quality for Crop Production and Environmental Protection.

Time the application of nutrients, manure, or organic by-products to avoid periods when field activities will result in soil compaction and the destruction of soil structure.

Apply manure at a rate that will result in an "improving" Soil Conditioning Index (SCI) without exceeding acceptable risk of nitrogen or phosphorus loss.

TCFA COMMENT: This is inappropriate. The Soil Conditioning Index only takes into account manure, field operations, and erosion.

In areas where salinity is a concern, select nutrient sources that minimize the buildup of soil salts.

CONSIDERATIONS

TCFA COMMENT: Because the 590 standard is supposed to be a guideline and not a regulation, TCFA contends that it is inappropriate for the standard to distinguish between "Criteria" and "Considerations." Everything in the standard should be a consideration or guideline. TCFA urges NRCS to return the 590 standard to its original purpose and leave environmental regulating up to the EPA.

Use nutrient management strategies such as cover crops, crop rotations, crop rotations with perennials to improve nutrient cycling to reduce energy inputs.

Use variable rate nitrogen application based on expected crop yields, soil variability, soil nitrate levels, or chlorophyll concentration.

Use variable rate nitrogen, phosphorus, and potassium application rates based on site-specific variability in crop yield, soil characteristics, soil test values, and other soil productivity factors.

Develop site-specific yield maps using a yield monitoring system. Use the data to further diagnose low and high yield areas, or zones, and make the necessary management changes. See Agronomy Technical Note # TN.190.AGR.3- Precision Nutrient Management Planning.

When assessing yield response, evaluate factors such as poor soil quality, drainage, pH, salinity, etc., rather than assuming that nitrogen and/or phosphorus are deficient.
Use legume crops and/or cover crops to provide nitrogen via biological fixation and nutrient recycling.

To improve nitrogen use efficiency consider:
- soil profile sampling for nitrogen,
- Pre-Sidedress Nitrate Test (PSNT),
- Pre-Plant Soil Nitrate Test (PPSN),
- corn stalk nitrate sampling, and
- tissue testing

Modify animal feed diets to reduce the nutrient content of manure.

TCFA COMMENT: Animal diets are formulated by animal nutritionists for animal productivity based on the best available science. Changing diets to reduce the nutrient content of manure may make the animals less efficient and result in more nutrient loss, thus exacerbating nutrient loss. TCFA urges NRCS to delete this provision.

Soil test information should be no older than one year when developing new plans.

Excessive levels of some nutrients can cause induced deficiencies of other nutrients, e.g., high soil test phosphorus levels can result in zinc deficiency in corn.

Use soil tests, plant tissue analyses, and field observations to check for secondary plant nutrient deficiencies or toxicity that may impact plant growth or availability of the primary nutrients.

TCFA COMMENT: The above provision assumes farmers don't know how to farm. It is not the purpose of the 590 standard to dictate yield maximization in a national guidance document. TCFA urges NRCS to strike this inappropriate provision.

Use the adaptive nutrient management learning process to improve nutrient use efficiency on farms. See NRCS Agronomy Technical Notes for details about the adaptive nutrient management process and benefits gained through use of an adaptive management strategy.

TCFA COMMENT: The above provision assumes farmers don't know how to farm. It is not the purpose of the 590 standard to dictate yield maximization in a national guidance document. TCFA urges NRCS to strike this inappropriate provision.

Considerations to Minimize Agricultural Nonpoint Source Pollution of Surface and Ground Water.

Conservation practices that slow runoff and increase infiltration, such as Filter Strip, Contour Farming, or Contour Buffer Strips, will reduce losses of nutrients in solution, such as nitrates or soluble phosphorus.

Use application methods and timing strategies that reduce the risk of nutrient transport by ground and surface waters, such as:

- split applications of nitrogen to deliver nutrients during periods of maximum crop utilization, or

TCFA COMMENT: This provision is biased against manure, organic by-products, and bio-solids because these nutrient sources must be land applied prior to plant emersion from the soil. In addition, all facilities, including CAFOs, that are required by state law to catch and contain all runoff from a drainage area, and dewater the runoff control structure as soon as soil conditions allow, will not be able to comply with this requirement. It is for these reasons that TCFA urges NRCS to delete this provision.

- banded applications of nitrogen and/or phosphorus to improve nutrient availability,
- Use drainage water management to reduce nutrient discharge through drainage systems.

TCFA COMMENT: NRCS does not have the legal authority to include this requirement in the 590 standard since the requirement ignores the agriculture storm water exemption which is included in the Clean Water Act statute. Nutrients applied in accordance with a nutrient management plan enable an agriculture producer to utilize the storm water exemption. TCFA urges NRCS to strike this provision.

Use agricultural chemical storage facility to protect air, soil and water quality.

Considerations to Protect Air Quality by Reducing Nitrogen and/or Particulate Emissions to the Atmosphere.

Avoid applying manure and other by-products upwind of populated areas.

TCFA COMMENT: This requirement is ambiguous. Everywhere is upwind of some populated area. How far away is acceptable? What is populated? This provision is biased against manure and "other by-products." What are other by-products? Is anhydrous ammonia not a concern on windy days? TCFA urges NRCS to delete this provision.

Use high efficiency irrigation technologies (e.g., reduced pressure, drop nozzles for center pivots) to reduce the potential for nutrient losses.

Workers should be protected from and avoid unnecessary contact with plant nutrient sources.

Extra caution must be taken when handling anhydrous ammonia, or when dealing with organic wastes stored in unventilated enclosures.

Material generated from cleaning nutrient application equipment should be utilized in an environmentally safe manner. Excess material should be collected and stored or field applied in an appropriate manner.

Nutrient containers should be recycled in compliance with state and local guidelines or regulations.

PLANS AND SPECIFICATIONS

The following components shall be included in the nutrient management plan:

- aerial site photograph(s)/imagery or site map(s), and a soil survey map of the site,

TCFA COMMENT: TCFA is hopeful NRCS would allow the use of easily available and inexpensive data for this purpose. Otherwise, costs of complying with this provision can be very high. To clarify the intent, TCFA suggests the above statement should be modified as follows: "aerial site photograph(s)/imagery (of Google Earth quality) or site map(s), and a soil survey map of the site based on best available data."

- soil information including: surface texture, pH, drainage class, permeability, available water capacity, depth to water table, restrictive features, and flooding and/or ponding frequency and duration,

TCFA COMMENT: Again, TCFA is hopeful NRCS would allow the use of easily available and inexpensive information to fulfill these requirements. Otherwise costs of complying with this provision can be very high. For example, requiring that depth to water table be included for each land application site in the plan would be extremely cumbersome and expensive since this information often may not be readily available without installing monitoring wells. If nutrients are being managed properly as required by the plan, nutrients will not be moving past the root zone of crops, and depth to groundwater will not be an issue. TCFA is hopeful NRCS will allow regional groundwater information to be used for this purpose. To clarify, TCFA suggests the above statement should be modified as follows: "soil information including: surface texture, pH, drainage class, permeability, available water capacity, depth to water table (based on regional groundwater information), restrictive features, and flooding and/or ponding frequency and duration (based on narrative historical information),"

- location of designated sensitive areas and the associated nutrient application restrictions and setbacks,

TCFA COMMENT: TCFA urges NRCS to put a reasonable limit on how far the determination of "sensitive areas" needs to be taken into consideration, and suggests the following clarification: "location of designated sensitive areas (adjacent to the site) and the associated nutrient application restrictions and setbacks,"

- results of appropriate risk assessment tools for nitrogen, phosphorus, and erosion losses.

TCFA Comment: TCFA suggests the word "appropriate" above should be changed to "reasonable" and that the reasonable assessment should be based on tools that are decided upon by all interested parties, not just federal or state government agencies.

- current and/or planned plant production sequence or crop rotation,

TCFA COMMENT: Crop planning must allow for changes in plans. Therefore, TCFA urges NRCS to modify the above provision as follows: "current and/or planned plant production sequence or crop rotation (subject to change on an annual basis),"

- soil, water, compost, manure, organic by-product, and plant tissue sample analyses applicable to the plan.

TCFA COMMENT: For clarification, TCFA suggests adding the word "biosolids" after the word "by-product" in the above provision. TCFA also urges NRCS to delete the words "and plant tissue sample analysis" in an effort to avoid the untenable situation of a regulator requiring expensive plant tissue tests. To clarify, TCFA recommends the above statement be changed as follows: "soil, water, compost, manure, organic by-product, biosolids, applicable to the plan"

- realistic yield goals for the crops,
- complete nutrient budget for nitrogen, phosphorus, and potassium for the plant production sequence or crop rotation,

TCFA COMMENT: TCFA urges NRCS to allow for the inclusion and consideration of other factors beyond just crop uptake or conservation use of nutrients when determining a nutrient budget. For example, a N budget should include allowances for denitrification and ammonia volatilization, a P budget should include an evaluation of soil fixing, and any nutrient budget should acknowledge K may increase anytime as long as any detrimental effect to crops or the environment is minimized. To clarify, TCFA urges NRCS to change the above provision as follows: "complete nutrient budget for nitrogen (which can include allowances for denitrification and ammonia volatilization), phosphorus (including soil fixing evaluation), and potassium (but may be increased if there is no detriment to crops or the environment) for the plant production sequence or crop rotation." In addition, TCFA urges NRCS to allow nutrient budgets to be adjusted annually based on actual yields and soil tests.

- listing and quantification of all nutrient sources and form,
- all nutrient use efficiency products that will be used,
- In accordance with the nitrogen and phosphorus risk assessment tool(s), specify the recommended nutrient application source, timing, amount, and placement of plant nutrients for each field or management unit, and

TCFA COMMENT: Compliance with the above provision is impossible for manure, organic by-products, biosolids, and effluent application systems because it is impossible to specify the source, timing, amount, and placement of plant nutrients. Therefore, TCFA urges NRCS to delete this provision.

- guidance for implementation, operation and maintenance, and recordkeeping.

In addition the following components shall be included in a precision/variable rate nutrient management plan:

TCFA COMMENT: TCFA urges NRCS to delete this entire section since a precision application may only be used for certain crops during crop rotation.

- aerial imagery or site map(s) with global positioning system (GPS) located soil sampling area or management zones,
- soil test analysis(es) maps that identify variations in soil nutrients.
- GPS sampling locations map and results map of plant tissue analyses, when used for nutrient management,
- statement specifying the type of precision technology planned (variable rate for N and/or P and/or K),
- Land Grant University recommendations for the nutrient amount shall be used, based on field variability and realistic yield goals,
- specify the nutrient, source, application placement and timing, of plant nutrients for all nutrients for each field or management unit, and
- document the basis for the variable rate application(e.g., chlorophyll concentration, grid soil tests, etc.).

If increases in soil phosphorus levels are expected, the nutrient management plan shall document:

TCFA COMMENT: The statement above appears to completely remove the evaluation of the appropriateness of the land application of manure from environmental concerns. Instead of doing an analysis of environmental impact, the statement above simply says the provisions below apply "if increases in soil phosphorus levels are expected." The provision seems to assume that any increase in soil P is bad, and is not science-based. That is why the phosphorus index is so critical to cattle producers and must be preserved. Otherwise, NRCS will be working in conjunction with EPA to ensure the demise of cattle producers across the country who can't land apply their manure simply because soil P might increase after an application. TCFA urges the preservation of the science-based phosphorus index and the deletion of this entire section.

- the soil phosphorus levels at which it is desirable to convert to phosphorus based planning and/or no further phosphorus application,
- the potential plan for soil test phosphorus drawdown from the production and harvesting of crops, and
- Management activities or techniques used to reduce the potential for phosphorus transport and loss.
- For AFOs, a quantification of manure produced in excess of crop nutrient requirements,

TCFA COMMENT: Again, as soil scientists are well aware, the release of all P from manure will not occur during the first year of application. Instead, P is released for use by plants over a period of several years. To clarify this important point, TCFA urges NRCS to modify the above provision as follows: "For AFOs, a quantification of manure produced in excess of crop nutrient requirements based on a phosphorus release schedule."

- A long-term strategy and proposed implementation timeline for reducing soil P to levels that protect water quality and allow for application of P at crop removal rates.

TCFA COMMENT: Again, this entire document appears to completely ignore the scientific reality of the often very high level of P fixing in soils. For example, the soil text book, "The Nature and Properties of Soils" by Nyle C. Brady, found that fixing rates may be as high as 85%, which means that only 15% of the P in manure applied is available to the crop for use. TCFA implores NRCS to take this scientific fact into consideration throughout this document.

OPERATION AND MAINTENANCE

TCFA COMMENT: This entire section is required in Nutrient Management Plans (NMPs) under EPA's Clean Water Act NPDES permit program for CAFOs. The NMPs under that law are, however, "plans" not regulations. Because EPA is the appropriate regulator of CAFOs under the Clean Water Act, TCFA urges NRCS to delete this entire section since its apparent regulatory purpose is biased against manure as a nutrient source, is inappropriate, and is beyond NRCS's statutory authority.

Conduct periodic plan reviews to determine if adjustments or modifications to the plan are needed. At a minimum, plans will be reviewed and revised, as needed with each soil test cycle, changes in manure volume or analysis, crops, or crop management.

Significant changes in animal numbers, management, and/or feed management will necessitate additional manure analyses to establish a revised average nutrient content.

Calibrate application equipment to ensure accurate distribution of material at planned rates.

Document the nutrient application rate. When the applied rate differs from the planned rate, provide appropriate documentation for the change.

Records shall be maintained for at least five years to document plan implementation and maintenance. As applicable, records include:

- soil, plant tissue, water, manure, and organic by-product analyses resulting in recommendations for nutrient application,
- quantities, analyses and sources of nutrients applied,
- dates, and method(s) of nutrient applications, source of nutrients, and rates or application

TCFA COMMENT:. Please change the word "or" to "of" in the provision above

- weather conditions and soil moisture at the time of application; lapsed time to manure incorporation, rainfall or irrigation event.

TCFA COMMENT: How is soil moisture to be determined? Lapsed time to manure incorporation, rainfall or irrigation event is a major recordkeeping challenge that is not required by the Clean Water Act NPDES permit program for CAFOs. Instead, EPA's NPDES permit program requires that weather conditions be documented 24 hours before, during and after manure applications. Imposing onerous and different recordkeeping requirements for different "regulations" is time consuming, expensive and confusing. TCFA urges NRCS to accept the NPDES permit program requirements as adequate here.

- crops planted, planting and harvest dates, yields, nutrient analyses of harvested biomass, and crop residues removed,
- dates of plan review, name of reviewer, and recommended changes resulting from the review.
- all nutrient use efficiency products that will be used,

Additional records for precision/variable rate sites shall include:

- maps identifying the variable application source, timing, amount, and placement of all plant nutrients applied,
- GPS based yield maps.

TCFA COMMENT: Similar information as that required by the two bullet points above is required under the 590 standard for regular nutrient application. Does NRCS intend to require yet another set of recordkeeping for precision/variable rate sites? TCFA urges NRCS to delete this section in an effort to minimize burdensome recordkeeping requirements.

REFERENCES
Agronomy Technical Note # - TN.190.AGR.3- Precision Nutrient Management Planning.
Agronomy Technical Note Adaptive Management- under development

TCFA COMMENT: It is unfortunate that NRCS referenced a document here that is "under development." Such a reference is inappropriate since commenters are unable to review the reference. In addition, TCFA urges NRCS to afford stakeholders the opportunity to review and comment on the Technical Note referenced above prior to finalization since it is incorporated into the 590 Standard document. Without such notice and comment, NRCS will be in violation of the Administrative Procedures Act requiring such notice and comment on regulations.

Follett, R.F. 2001. Nitrogen Transformation and Transport Processes. pp. 17-44, In R.F. Follett and J. Hatfield. (eds.). 2001. Nitrogen in the Environment; Sources, Problems, and Solutions. Elsevier Science Publishers. The Netherlands. 520 pp.

TCFA COMMENT: Surely, nitrogen research by a US source is available as a reference, is it not? The fact that this document references a Netherlands study after our federal government has spent huge sums of money over the years on nitrogen research is perplexing. TCFA urges NRCS to use and reference US sources for its decision-making.

Scheper, J.S., and W.R.Ruan, (eds) 2008. Nitrogen in Agricultural Systems, Agronomy Monograph No. 49, ASA, CSSA, SSSA, Madision, WI.
Sims, J.T. (ed.) 2005. Phosphorus: Agriculture and the Environment. Agron. Monogr. 46. ASA, CSSA, and SSSA, Madison, WI.
Stevenson, F.J. (ed.) 1982. Nitrogen in Agricultural Soils. Agron. Series 22. ASA, CSSA, and SSSA, Madison, WI.

Thank you for your consideration of our comments.

Sincerely,

Ross Wilson
President & CEO