

To Whom It May Concern:

We are submitting these comments on behalf of the Ag Carbon Market Working Group – comprised of farmers interested in carbon markets across the U.S. These comments focus on measurement methodology, additionality, financial considerations, and yield loss.

In our experience, many farmers in the U.S. welcome the opportunity to participate in greenhouse gas (GHG) offset markets that benefit both their farms and result in GHG emission reductions; however, the program must be economically and scientifically implementable at the farm level. Overall, we support the Climate Action Reserve's goal of improving nitrogen application, but find that the Nitrogen Management Protocol as written is unlikely to be adopted by producers due to several unintended barriers. We offer these comments in an effort to help make the protocol more workable.

1. Challenges with Nitrogen Measurement

We recognize the Protocol's desire to generate a simple system for offset calculation, but find it crucial that the Protocol be an evolving document as more information on nitrogen application becomes available. While removed-to-applied (RTA) nitrogen measurements, which measure the ratio of nitrogen removed by the crop to the amount of nitrogen applied to the field, might be the most feasible method with present data, many other factors affect nitrogen application rates and emissions. In order to obtain more precise measurements in the future, emissions calculations must include existing soil nitrogen from cover crops, residue, as well as previous and current soil conditions, and consider the significant impact of weather on the amount of plant available nitrogen.

Climate can also be the cause of significant nitrogen demand variability between growing seasons. By measuring only RTA nitrogen, the protocol does not measure nitrogen levels already in the system and thus cannot account for true gains or losses in N₂O emissions. State RTAs also do not account for the significant regional variability within a state. For example, the conditions and soils in northern Iowa are different than the conditions and soils in southern Iowa.

Finally, it is important to note that the relationship between nitrogen application and N₂O emissions is not linear. Decreasing variability by adopting additional factors that affect soil nitrogen will help generate a better estimate of actual emission reductions.

It is our recommendation that the Protocol work to include additional variable aspects of nitrogen use and N₂O emissions to generate more precise and accurate calculations.

2. Additionality

Additionality is an important issue for many offset types, however it is rarely relevant when considering nitrogen reductions in agriculture. This is true for two reasons. First, even though precision nitrogen systems or practices may already be in place for some farms, none of these systems focus on the interaction of weather in addition to targeted application. Changes in precipitation, in particular, have the ability to make a huge difference in terms of N₂O emissions. So while someone may be reducing their overall N amount, if they are not coordinating that practice with weather impacts, it is impossible to say that they are reducing significant emissions because temperature and moisture play a large role in determining how N breaks down in the environment.

Second, outside of regulation, it is rare that farmers take the risk to significantly reduce nitrogen application without incentive or insurance. We believe that if farmers are participating in the Protocol and reducing nitrogen use, emission reductions are being created that would not have otherwise occurred and are therefore additional. The only instance in which additionality could be an issue would be if a farmer were utilizing advanced, precision nitrogen management tools that account for weather variability and stored nitrogen. It is our experience that few farmers practice this level of adaptive management, and thus any practices beyond regulatory efforts or nutrient management plans would be additional, making accounting for additionality in this protocol irrelevant.

It is our suggestion that farms making efforts to reduce their nitrogen use outside of regulations or other incentives and utilizing models that factor in weather data to assess N₂O emissions, should be eligible to participate in the Protocol and provide offset credits.

Moreover, we suggest that the Protocol eliminate the two-year grace period required to meet the RTA before a farmer can receive offset payments. If the farmer is unable to receive payments during these years, but is still required to make nitrogen reductions, there is no financial incentive, and great potential risk in terms of reduced yield for the farmer to continue making reductions.

By eliminating the two-year grace period and providing payments to farmers for all reductions, even if over the state RTA threshold, the Protocol becomes more feasible for farmers.

3. Reduce Financial Risk

Many farmers are interested in participating in offset markets, but only if financial risks are minimized and technical adaptation is affordable. Equipment and management costs are a major barrier to farmers entering new offset markets like

the Protocol. We recommend giving serious attention to this issue as it is a barrier that will likely prevent any significant use of the protocol.

The post harvest calculation of state RTAs and offset payments represent a significant financial risk to farmers considering participation in the Protocol. This measurement method creates a scenario in which farmers could invest in the equipment and new management practices required, significantly reduce N application in their fields, but still fall above the state RTA at the end of the season and therefore not be eligible to receive offset payments. Without a projection of what the state RTAs will be or a goal to meet before participating, risk-averse farmers will not participate.

It is our suggestion that at side-dress time, a predicted RTA be developed to provide a measuring stick that farmers can use to determine their probability of falling below the state RTA. This predicted RTA could then be compared with the actualized state RTA at the end of the season. If there is a significant difference in the predicted versus actualized RTA, fields that fall at or below a certain adjusted for error RTA would qualify for payments. By providing a predicted RTA farmers will have a better understanding of their chances of qualifying for offset payments, before taking risks during side-dress.

Additionally, farmers who want to use readily available manure, which costs less than synthetic nitrogen and avoids the additional emissions generated in that process, should not be penalized for manure storage and transportation emissions if indirect emissions for synthetic nitrogen are not also measured. This creates a bias towards synthetic nitrogen use, which could discourage the practice of recycling manure back into the land without any significant GHG reduction benefits.

4. Yield Loss

While farmers are interested in participating in offset markets, they must be assured that if significant changes in practice result in reductions in yield there are contingencies for insurance or aid in place. Farmers face serious financial challenges if they suffer significant yield losses and many will not risk their current yield levels if there is not some sort of safety net.

It is our suggestion that a form of insurance or yield adjustment be incorporated to better protect farmers against large financial risk.

5. Conclusions

We encourage and support the recognition of farmers' willingness to adopt greater land stewardship practices through reducing nitrogen application, however, without proper consideration of farmer feasibility and the financial risks associated, we believe this protocol will not attract farmer participation.