Nitrogen credit for killed wheat

As I write this, we are getting our first warm days after the arctic winds descended on us. Plants are starting to try to grow again, which will make it easier to diagnose how much damage they took. I don't know how much wheat will be taken out, but potentially it could be a lot.

Most of the wheat in Missouri has already received considerable N fertilizer. If the decision is made to kill it and plant corn (or other N-demanding crop), then it becomes important to address the question of how much of the applied N will be available to the corn.

I don't know of any data or experiments that could be used to help answer this question. All I have to offer is my opinion, based on the combinations of factors that are coming together.

Conditions have not been too conducive to movement of N out of the root zone. Probably some has been lost, but more has gone into the wheat crop to forms that won't release soon enough to be used by corn. Growth stage of the wheat at the time that it is killed will have a significant influence on how much N will be available for corn. The more advanced the wheat, the more N it has taken up, and the more of that N has moved into hard-to-decompose compounds.

My guesses as to how much of the applied N to credit:
Killed before joints moved above ground: 70%
Killed with one or two joints: 50%
Killed in boot or later: 30%

These numbers do not come with money-back guarantees. However, to diagnose how much of the wheat N is available, there are only a few alternatives to guessing.

A soil test could be used, but for fields that are farther along it probably wouldn't be worth it. For fields that were not jointed or barely jointed at the time the frost hit, a soil sample might be useful, but should be taken to a 2-foot depth and only if N found exceeds 50 lb should a credit be taken (see MU Extension guide G9177). The problem with this approach is that it won't count the N that is already taken up by the wheat, but will be released in time to help the corn.

For sidedressers, another diagnostic tool that could help is a chlorophyll meter. If you're interested in this approach, call me at (573) 882-0777.