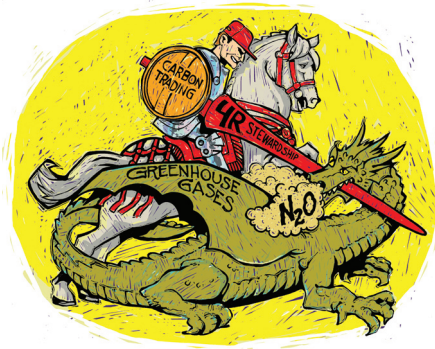


# FERTILIZING FOR CREDIT



**A**gricultural organizations have been seeking opportunities for recognition of farmer contributions toward mitigating greenhouse gas emissions. For this to happen, regulatory programs need to allow offsets. Offsets are defined as emission reduction credits traded from regulated to non-regulated industries. Governments plan to regulate emissions from large factories, but not those from farms. Farm emissions are diffuse, sporadic, and difficult to measure directly. Nonetheless, science is elucidating the effects of crop management practices in terms of probability and magnitude of mitigation. This provides a potential opportunity for farmers to receive carbon credits.

**Nitrous oxide is one of the greenhouse gases considered responsible for the warming trend in the climate.** Pound for pound, it is deemed

about 300 times more effective in trapping heat than carbon dioxide. Experts recently agreed on a new approach to fertilizer stewardship to limit its emission.

**Farmers can achieve better management through implementation of the 4R nutrient stewardship approach, applying the right source at the right rate, right time, and right place.** This approach starts with the definition of economic, social, and environmental sustainability goals. The 4Rs describe site-specific practices—based on sound agronomic principles and supported by objective research results—that contribute to the defined goals.

**Including nitrous oxide emission reduction as one of the goals leads to the selection of practices that are “right” for reducing nitrous oxide without neglecting the remaining goals.** Farmers may need to spend or invest more to implement such practices. However, the environmental benefit for the “public good” should be recognized as a carbon credit or offset in protocols for reduction of greenhouse gas emissions.

**Recent studies by USDA Agricultural Research Service with irrigated no-till corn in Colorado documented reductions of 25 to 50% in nitrous oxide emissions through use of enhanced-efficiency N fertilizer sources.** Similar reductions have been reported in other studies, and may be witnessed in on-going research in the USA and Canada.

**Investment in and implementation of the 4R fertilizer management strategy would seem attractive not only to farmers and society, but also to carbon credit and offset trading programs.** New and exciting technologies are being explored, and better crop management skills are being honed by professional agronomists, crop advisers, and farmers. As science-based protocols are developed, there may be potential for farmers to receive carbon credits to help optimize the performance of their cropping systems.

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