**Non-CO₂ Greenhouse Gases:** Methane

**Source/Sectors:** Agriculture/Rice Cultivation

**Technology:** Other options for methane reductions - excluding water management (A.3.3.2)

**Description of the Technology:**
All rice in the United States is grown on flooded fields. One of the most important factors affecting methane emissions is the water management system under which rice is grown. Under continuously flooded conditions, rice fields have higher methane emissions than those that are not flooded. Other factors that influence methane emissions from flooded rice fields include fertilization practices (especially the use of organic fertilizers), soil temperature, soil type, rice variety, and cultivation practices (USEPA, 2006a).

Specific technological options, other than water management, to reduce CH₄ emissions from rice cultivation include:

- Alter the amendments to soils – Adding amendments (e.g., phosphogypsum) to soils to inhibit methanogenesis would reduce methane emissions (Beach et al., 2006; Graus et al., 2004).
- Use of alternative fertilizers – Using an alternative fertilizer (e.g., ammonium sulfate instead of urea) may also reduce methane emissions because sulfate additions to soil can elevate reduction potential, which suppresses methane production (USEPA 2006b; Beach et al., 2006).
- Off-season straw – Shifting straw amendment from in-season to off-season (e.g., apply rice straw two months before rather than in the beginning of rice-growing season) can decrease availability of dissolved organic carbon and, thus, the population of methanogens (USEPA, 2006b).

**Effectiveness:** Fair

**Implementability:** Fair

**Reliability:** Fair

**Maturity:** Fair

**Environmental Benefits:** Methane emission reduction.

**Cost Effectiveness:** None reported.

**Industry Acceptance Level:** Low

**Limitations:** May affect the rice production.

**Sources of Information:**


