

Mapping China's Agricultural Methane Reduction: Trends and Local Actions

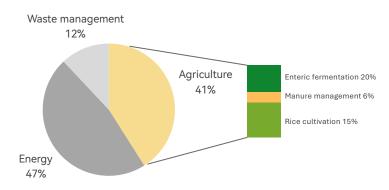


Agriculture: China's Second-Largest Methane Source and A Key Area for Mitigation

Agriculture is China's second-largest source of methane emissions, contributing 41% of the national total in 2021. Most of these emissions come from livestock farming (26%) and rice cultivation (15%).

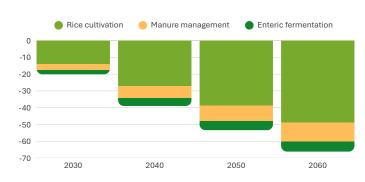
At the same time, this sector also presents a major opportunity for methane reduction. iGDP's analysis estimates that in 2060, China could reduce agricultural methane emissions by up to 65 million tons of CO₂ equivalent through measures such as optimizing irrigation practices, scaling up high-yield, low-emission, and drought-resistant rice varieties, and expanding the use of anaerobic digestion for livestock manure management.

Figure 1a. Agriculture is China's second-largest source of methane emissions



Source: iGDP, based on China's First Biennial Transparency Report on Climate Change.

Figure 1b. Mitigation potential* for agricultural methane in China



Source: iGDP calculations.

Note: Mitigation potential refers to the "new policy scenario," which considers policies introduced since China announced its dual-carbon goals.



A Triple Win: How Reducing Agricultural Methane in China Benefits the Climate, Resources, and the Economy

Figure 2. Multiple Benefits of Agricultural Methane Mitigation in China





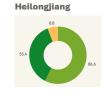


Five Provinces Contribute One-Third of China's Agricultural Methane Emissions

Figure 3. Northeast and Central-South China are key regions for agricultural methane emission

In 2023, China's agricultural methane emissions were concentrated in the Northeast, Central-South, and Southwest regions. At the provincial level, Hunan, Sichuan, Inner Mongolia, Jiangxi, and Heilongjiang were the top five emitters, together accounting for over 32% of the national total.

The main sources of emissions differ across regions. In Hunan, Jiangxi, and Heilongjiang—all major rice-producing provinces, most methane come from rice cultivation. In contrast, livestock farming was the leading source in Inner Mongolia, which has extensive grassland and a large animal husbandry sector. In Sichuan, known for both rice and livestock production, showed a roughly equal split between the two sources.





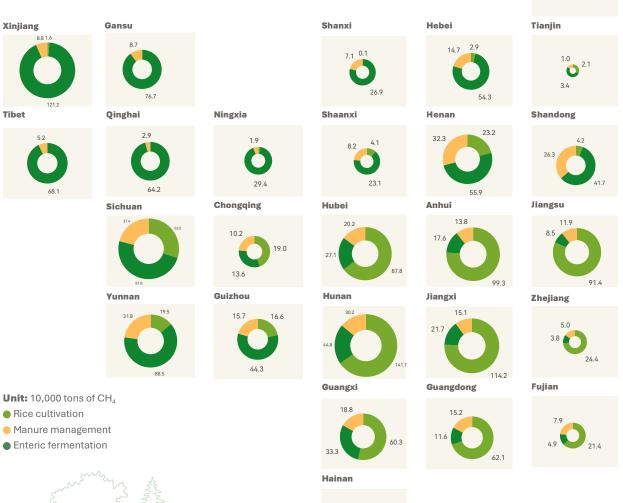






Shanghai

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Source: iGDP calculations based on data from the China Agricultural Yearbook and

the National Bureau of Statistics.





Nine Provinces Roll Out Methane Control Plans to Strengthen Agricultural Mitigation

Subnational governments in China are developing methane control policies tailored to their local emissions profiles. As of the end of October 2025, nine provincial-level regions have released their local Methane Emission Control Action Plans. Their mitigation measures, particularly in the key sectors of rice cultivation and livestock management, align closely with the national strategy.

Many provinces have established quantified targets for the management and utilization of livestock and poultry manure. Notably, Tianjin and Ningxia have set their resource utilization targets higher than the national benchmarks. Hubei Province, a major rice-producing region, has proposed a demonstration project for green and low-carbon rice cultivation to showcase best practices and accelerate the transition toward more sustainable farming.

Figure 4. Nearly one-third of provinces have issued subnational methane control plans.

Ningxia Hui Autonomous Region

Key mitigation measures and targets:

- By 2025, livestock and poultry manure utilization rate ≥ 90%
- Improve feeding and management practices
- Enhance water and fertilizer management in rice fields
- Promote high-yield, low-emission rice/livestock and poultry varieties

Shanxi Province

Key mitigation measures and targets:

- Livestock and poultry manure utilization rate ≥ 80% and 85% by 2025 and 2030
- Scale up low-emission livestock breeding; enhance feeding management practices

Liaoning Province

Key mitigation measures and targets:

- Livestock and poultry manure utilization rate ≥ 80% and 85% by 2025 and 2030
- Enhance water and fertilizer management Improve feeding management practices
- Promote high-yield, low-emission rice/livestock and poultry varieties

Hunan Province

Key mitigation measures and targets:

- 80%+ livestock manure utilization by 2025
- Promote low-protein diets and silage; advance precision feeding and smart farming
- Adopt low-emission, efficient cultivation practices; improve water management in rice paddies

Beijing Municipality

Key mitigation measures and targets:

- Promote low-emission livestock farming practices
- Utilize livestock and poultry manure through anaerobic digestion

Yunnan Province

Key mitigation measures and targets:

- 80%+ livestock waste utilization by 2025, 85%+ by 2030
- Promote high-yield, low-emission rice/livestock and poultry varieties
- Optimize feed; improve water and fertilizer management

Tianjin Municipality

Key mitigation measures and targets:

- 90% livestock manure utilization by 2025, maintained through 2030
- Promote low-protein diets and silage; implement precision feeding
- Improve water and straw
 management in rice paddies; scale
 up resilient, high-yield rice varieties



Key mitigation measures and targets:

- 80% livestock waste utilization by 2025, 85%+ by 2030
- Breed and promote high-yield, low-emission livestock; improve feeding management
- Improve water and fertilizer management in rice paddies; scale up high-yield rice varieties
- Encourage methane monitoring in rice paddies
- Pilot green circular farming

Guangdong Province

Key mitigation measures and targets:

- 80% livestock manure utilization by 2025, and 85%+by 2030; 86%+ straw utilization rate by 2025
- Promote water-saving, drought-resistant rice varieties; strengthen water and fertilizer management
- Build 1 real-time methane monitoring system for rice paddies to develop inventory







Local Pilots Show How Methane Mitigation Delivers Multiple Benefits

Alongside national and provincial policy planning process, iGDP is tracking promising agricultural methane mitigation practices across regions. In Sichuan and Yunnan, no-till and ridge-furrow rice planting techniques are simultaneously slashing water use and methane emissions. Furthermore, Yunnan is optimizing livestock feed for dairy cattle, which lowers farmer's costs, improves animal digestion and reduces methane from enteric fermentation. In Jiangxi, better management and use of livestock and poultry manure is supporting circular agriculture. These examples show that practical methane mitigation measures can be scaled up and deliver multiple environmental and economic benefits.

Figure 5. Emerging agricultural methane reduction practices deliver climate, economic, and social benefits





- Small-scale climate-friendly rice farming practice that smallholder farmers can easily replicate.
- Develop rice farming techniques suited to the local climate, such as using direct dry seeding, selecting lowemissions and high-yield rice varieties, and adopting notillage.
- Reduce methane from rice paddies while adapting to climate change — achieving 60– 70% water savings and 60– 80% methane reduction



Yunnan province: a key region for cattle and dairy cow production

- The use of **high-quality forage** to replace concentrated feed.
- Use corn silage and mixed hay feed to improve digestibility and reduce methane emissions from fermentation by
 - **6%-20%**. Meanwhile, farmers can cut feed costs by **60%**.
- Farmers can generate extra income by collecting manure and sell to local organic fertilizer producers.



- Large-scale biogas recovery projects from livestock manure.
- Collect livestock manure from multiple livestock farms for anaerobic fermentation.
- Recover biogas for power generation.
- Convert remaining residue into organic fertilizer for sale.
- Annual biogas output can replace 7,400 tons of standard coal, cut 18,000 tons of CO₂, and reduce fertilizer use.

Authors: ZHU Tongxin, CHEN Meian, MA Yue

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Contact us: igdpoffice@igdp.cn

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