



Institute of Environment and Sustainable Development in  
Agriculture, Chinese Academy of Agricultural Sciences

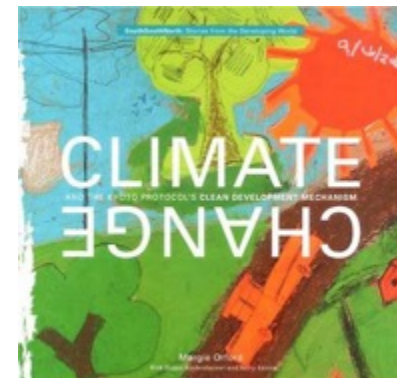
IEDA, CAAS

GLOBAL  
RESEARCH  
ALLIANCE  
ON AGRICULTURAL GREENHOUSE GASES

# Mitigation GHG emission intensity from rice production in China

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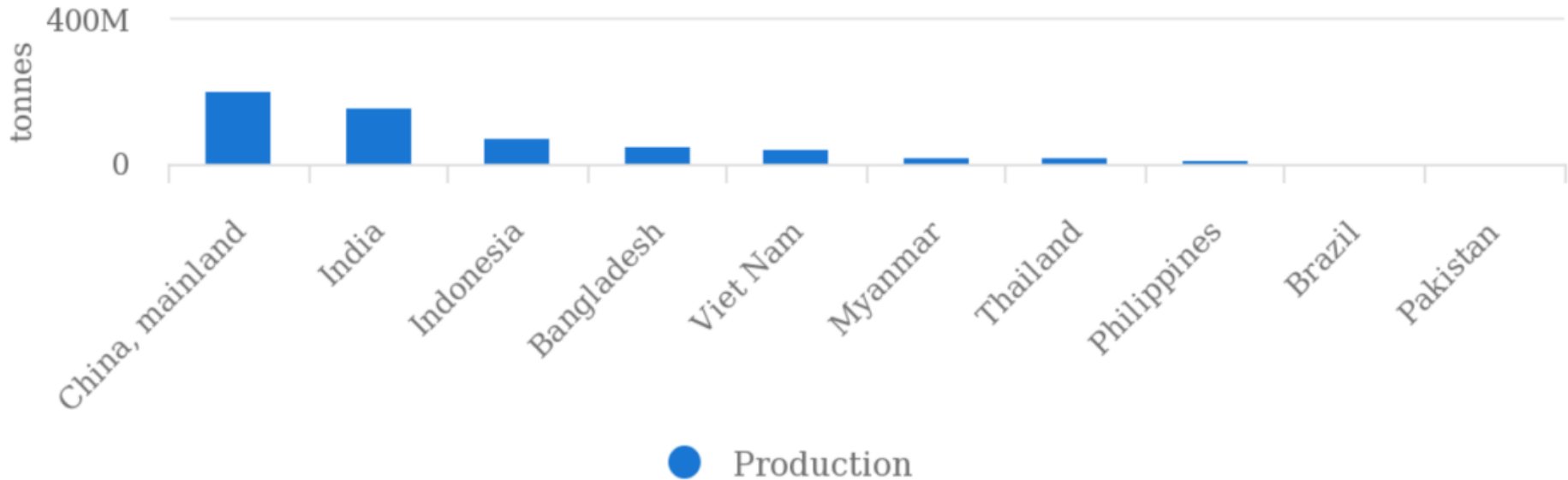


# In this talk

- Background
- National policies
- Our practices



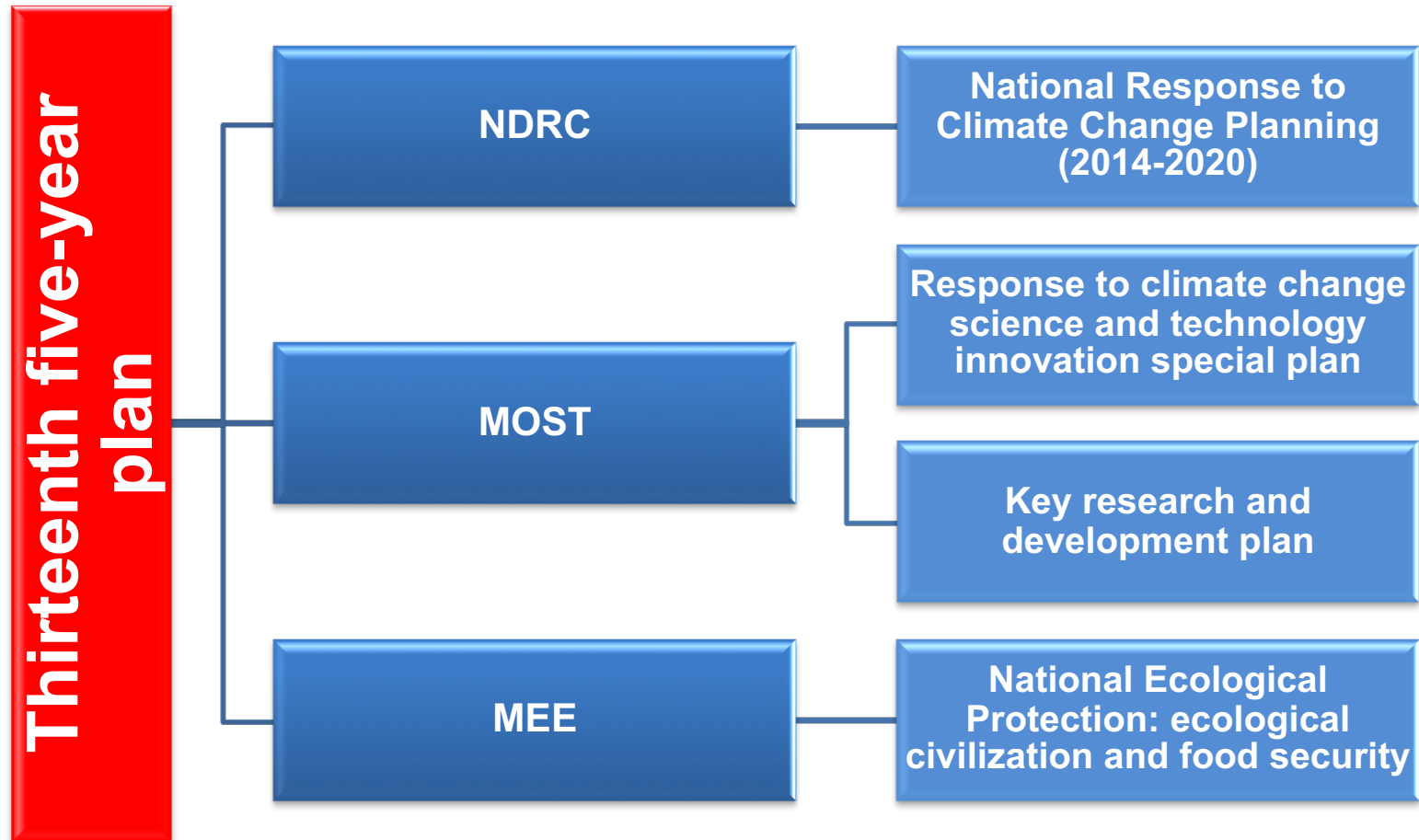
# Production of rice: top 10 producers



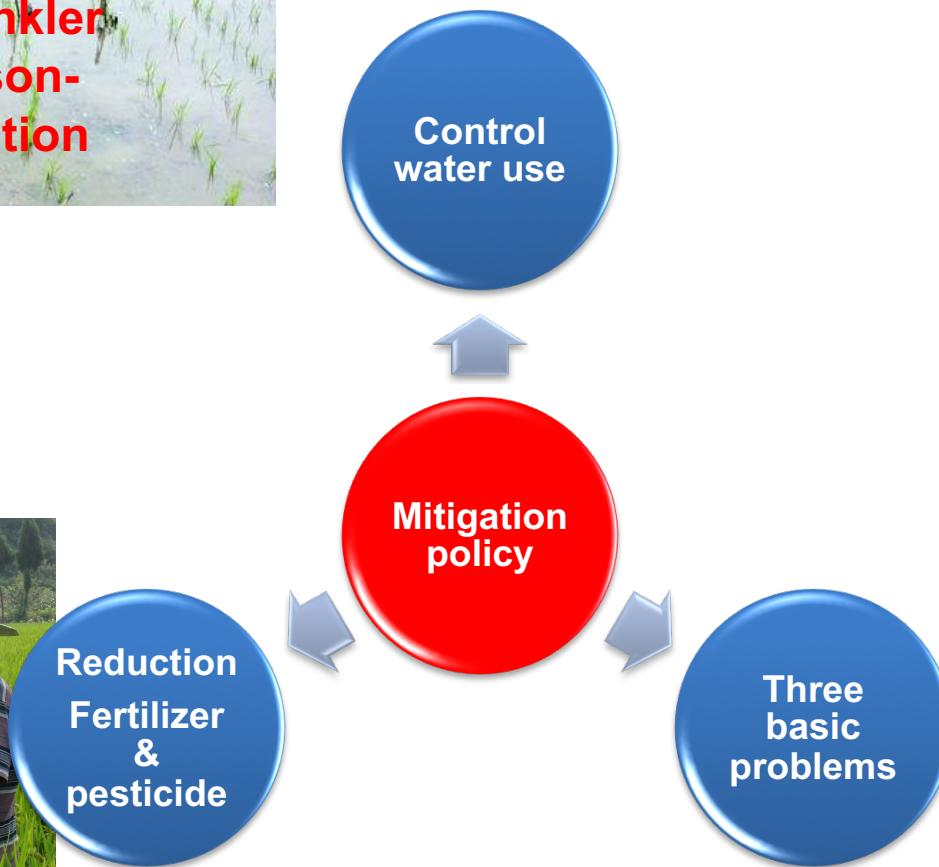
Source: FAOSTAT (Sep 17, 2018)

- China is the first rice producer in the world
- 19% of rice plantation area of the world (FAO, 2017)

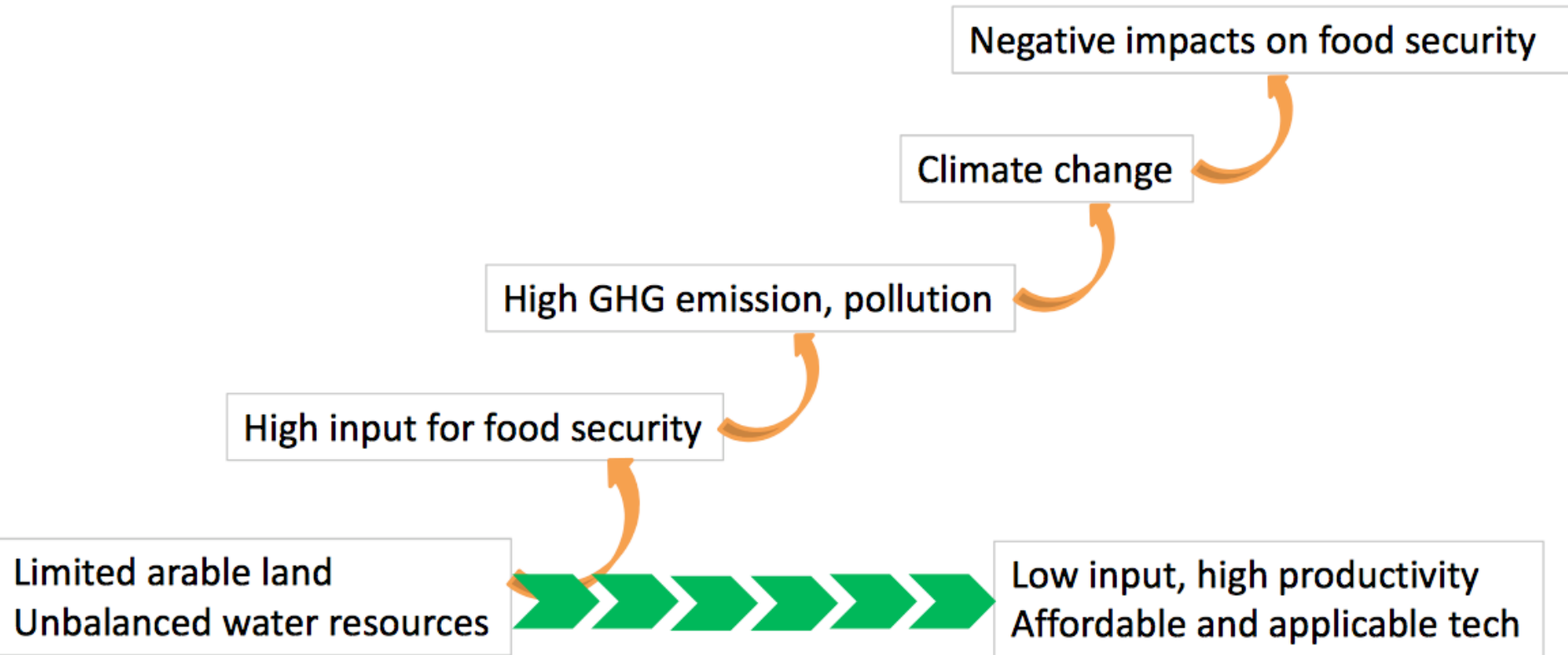
# National and provincial policy: Low carbon development and coping with climate change



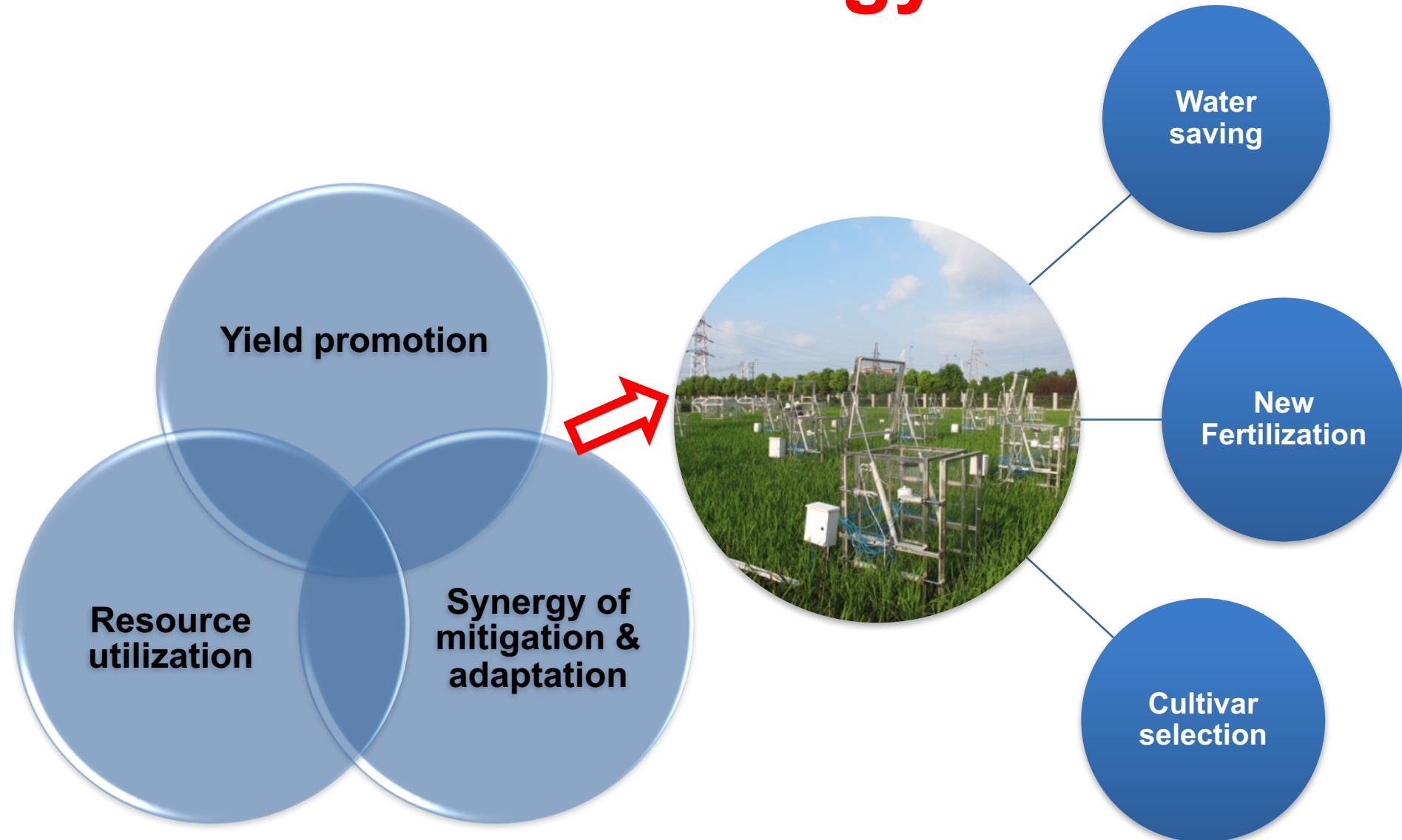




# Challenges



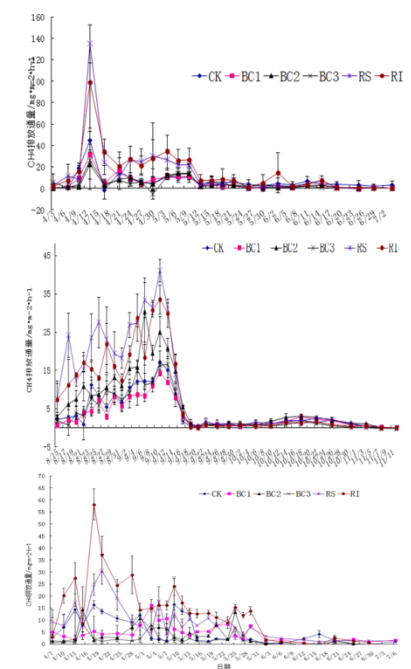
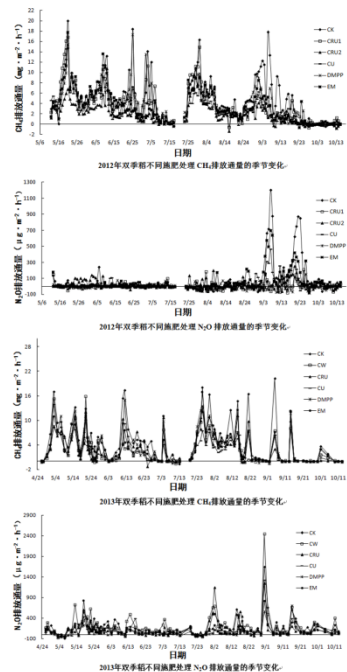
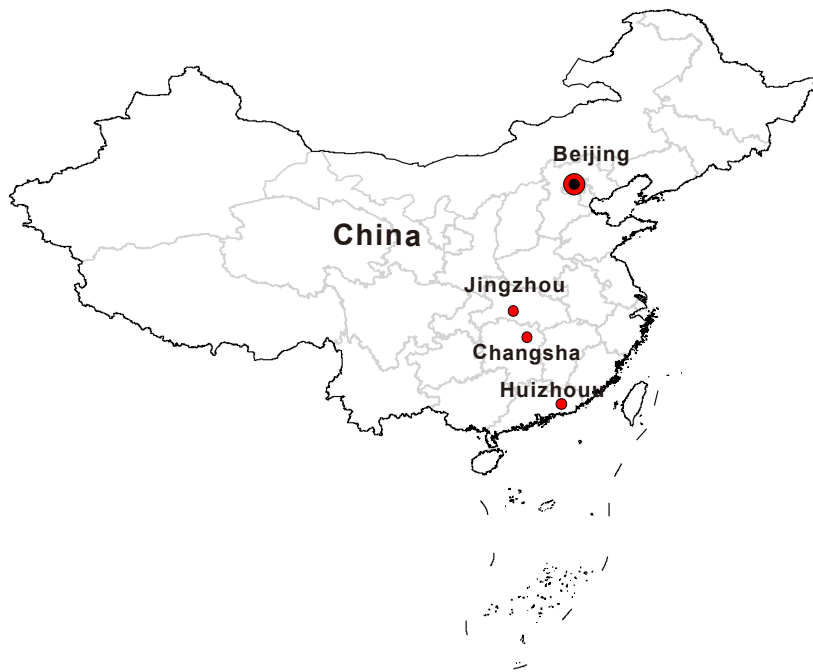
# Optimization of GHG reduction technology



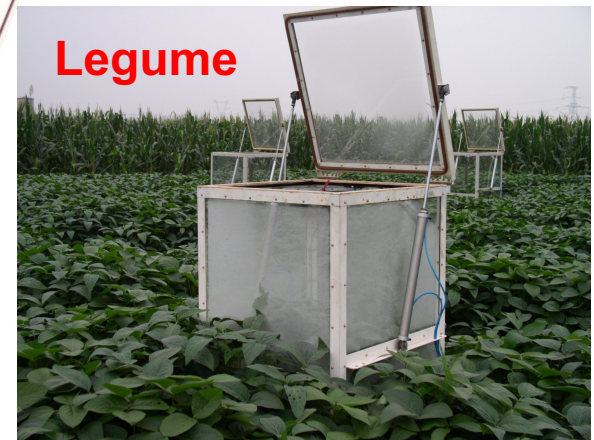


# GHG emission mitigation research system

- Three long-term experimental sites
- Central China: Hubei
- South China: Guangdong

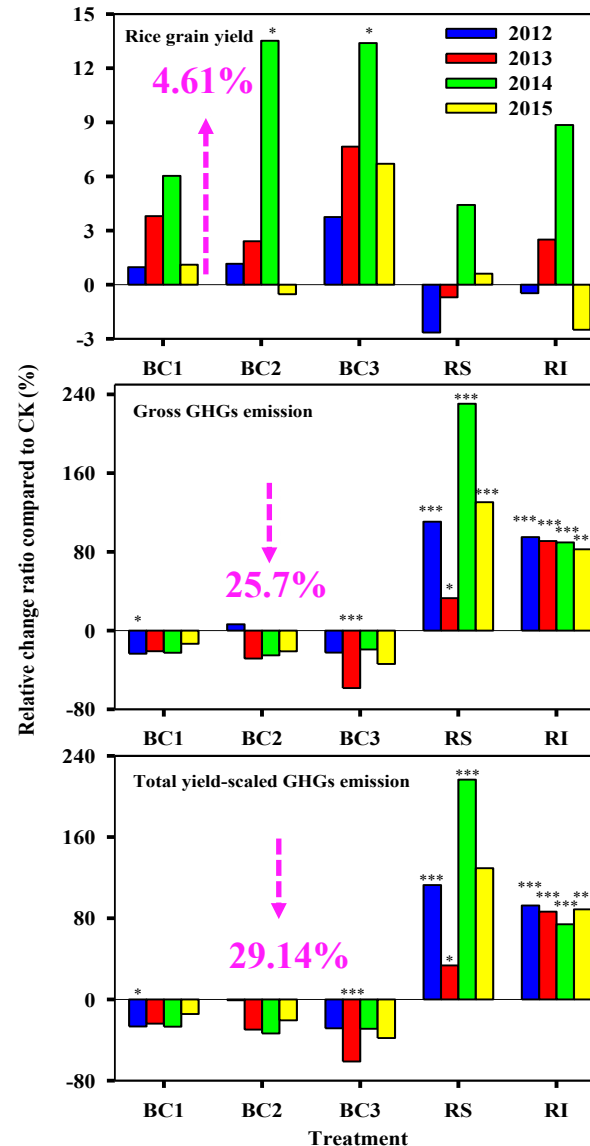


# Development of GHG automatic monitor system





# 1. Biochar application



**Yield promotion > 4.5%**

**GHG & GHGI reduction > 25%**

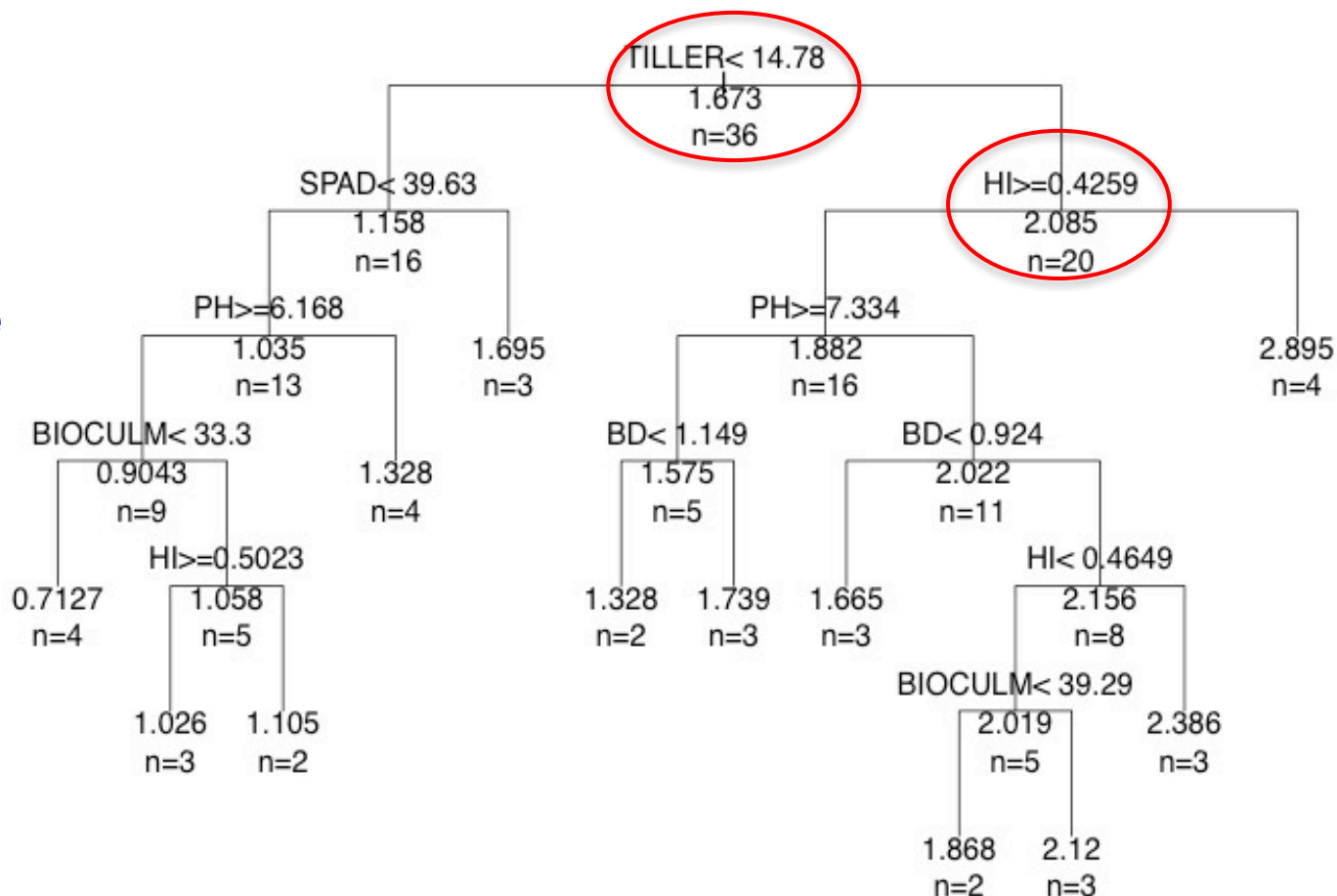
(Qin et al., 2016)

# 1. Biochar application

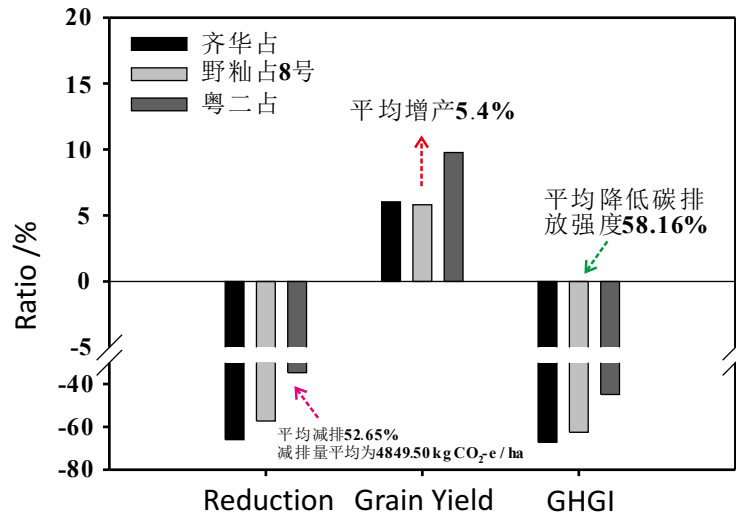


## 2. Rice cultivar selection

- Three rice cultivars were selected with high yield potential & low  $\text{CH}_4$  emission potential
- GHGI indicator: effective tiller number & harvest index



## 2. Rice cultivar selection



- Three selected cultivars:
  - Yield >5%
  - GHGI reduction >58%
- Both of the biochar and cultivar selection technology has been demonstrated in the local area



# 3. Modified N fertilizer & water saving irrigation

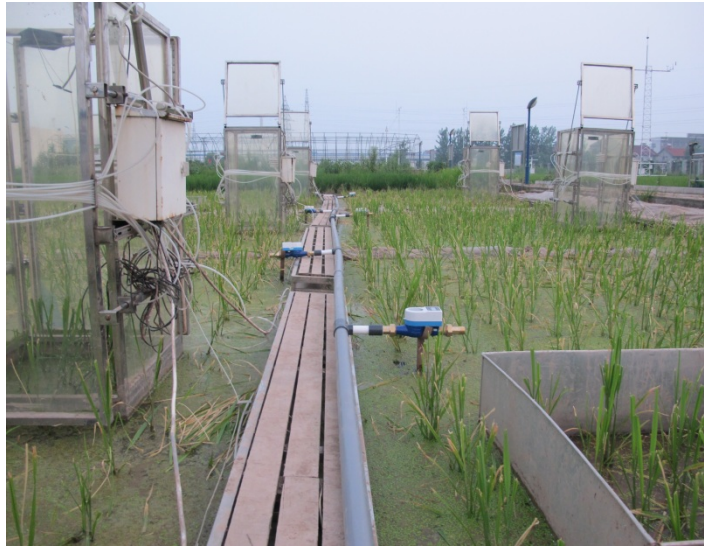
- Lower GWP were observed under the SWD **water saving irrigation**
- Controlled release urea or urease inhibitor, nitrification inhibitor in **combination** with SWD irrigation could be used to decrease the overall effect on greenhouse gas while simultaneously increasing yields



(Wang et al., 2016; Li et al., 2018)



# 3. Modified N fertilizer & water saving irrigation





A close-up photograph of a rice field. The rice plants are tall and green, with long, narrow leaves. The panicles (grain heads) are visible, showing a golden-green color, indicating they are maturing. The background is a dense field of similar plants, slightly out of focus.

**Thank you for your attention!**

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