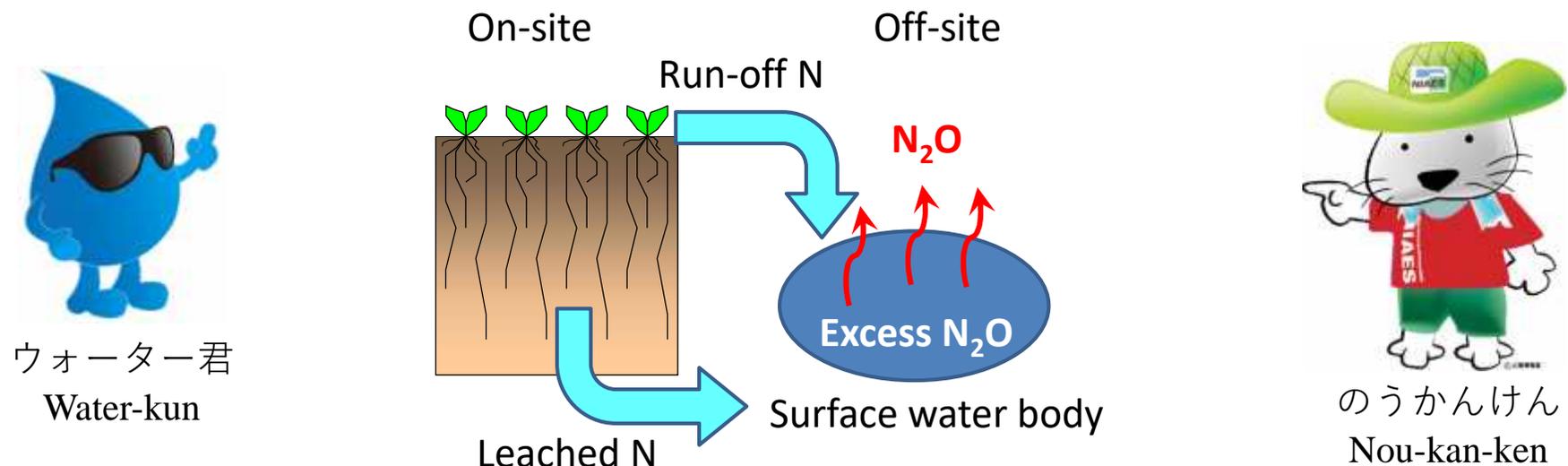


Mitigating indirect N_2O emission from Japanese agricultural soils by reducing nitrogen leaching and runoff

Sadao Eguchi, Nanae Hirano, Shin-Ichirou Mishima, Kazunori Minamikawa

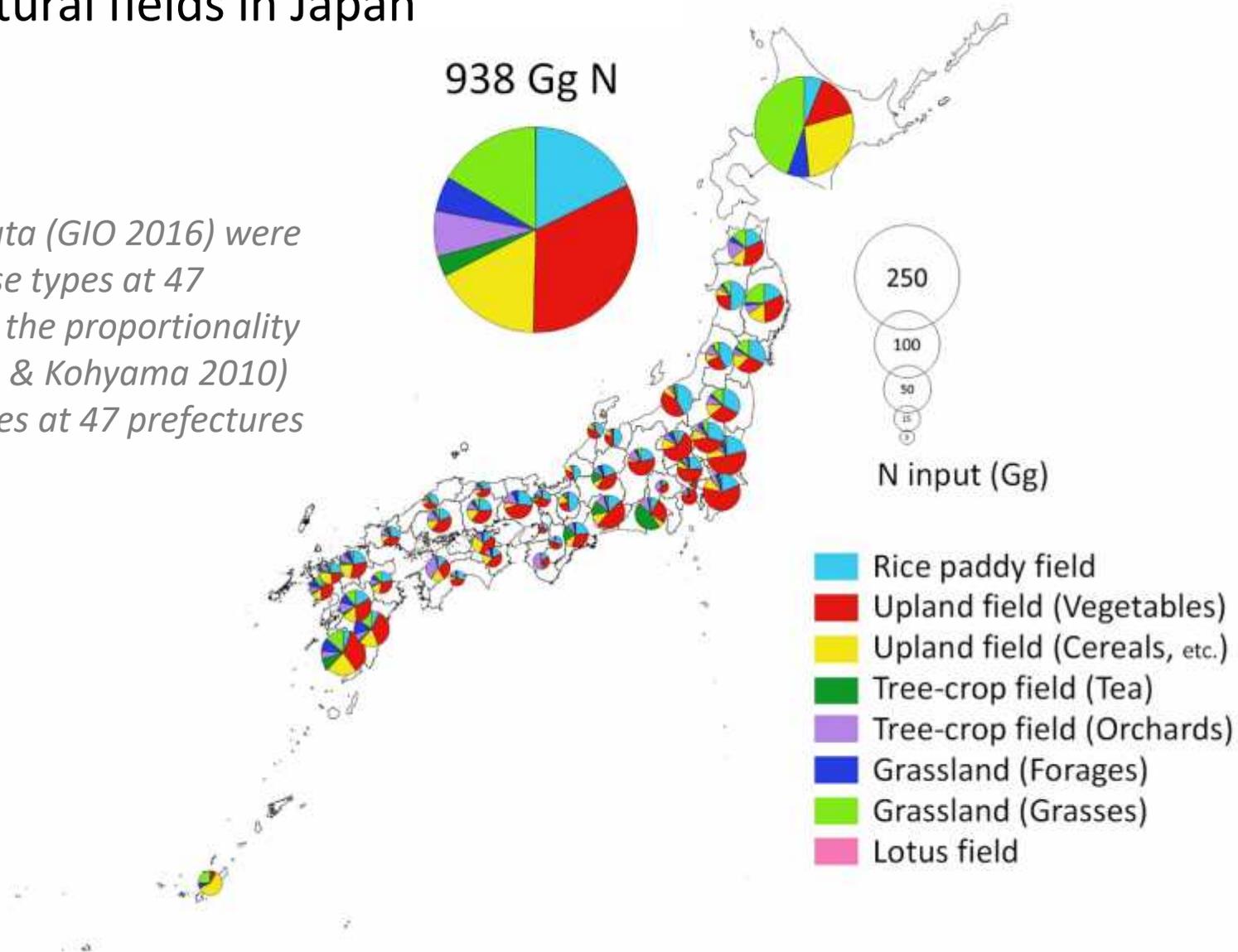


NARO (National Agriculture and Food Research Organization) Institute for Agro-Environmental Sciences (NIAES), Japan

N input to agricultural fields in Japan

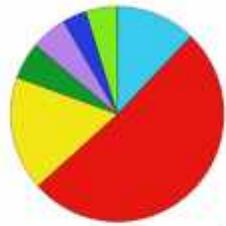
- 8 land-use types
- 47 prefectures

National-scale N input data (GIO 2016) were broken down into 8 land-use types at 47 prefectures, according to the proportionality of N input data (Mishima & Kohyama 2010) for different land-use types at 47 prefectures



N outflow (indirect N₂O emission) under 'conventional' practices

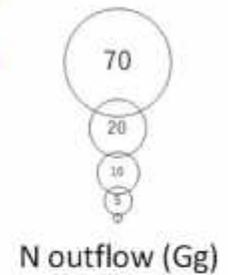
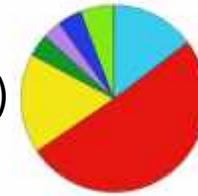
289 Gg N
(2.17 Gg N)



Reduction potential
25%

N outflow (indirect N₂O emission) under 'improved' practices

218 Gg N
(1.64 Gg N)



- $N \text{ outflow rate} = N \text{ outflow} / N \text{ input}$ (under 'conventional' practices)
- $N \text{ outflow ratio (effectiveness of improvement)} = N \text{ outflow under 'conventional' practices} / N \text{ outflow under 'improved' practices}$
- The 'improved' practices include: Organic N application; Slow-release chemical N application; Cover cropping; Mulching; etc.