# FEEDING THE RICE CROP: FILIPINO FARMERS' MANAGEMENT PRACTICES

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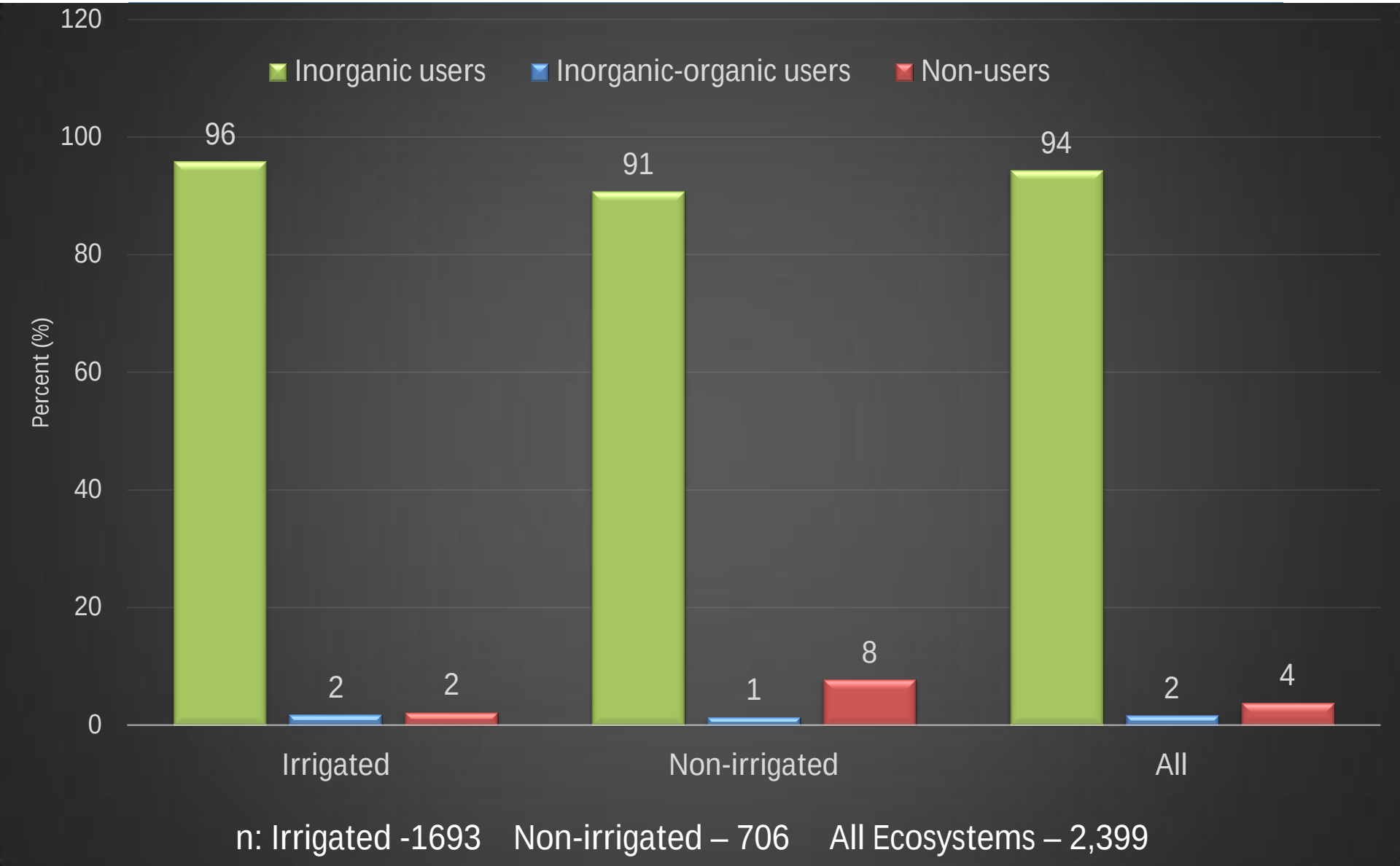
# Objectives

- Fertilizer use and nutrient management practices of rice farmers (2011 WS)
  - sources and types of fertilizer
  - $N$-$P_2O_5$-$K_2O$ use
    - by ecosystem/barangay classification
    - by method of crop establishment
    - by seed class
    - by source of water
- Technology awareness and adoption on Nutrient Management Practices
- Training on Nutrient Management
- Government Services availed and wanted by farmers

# Fertilizer

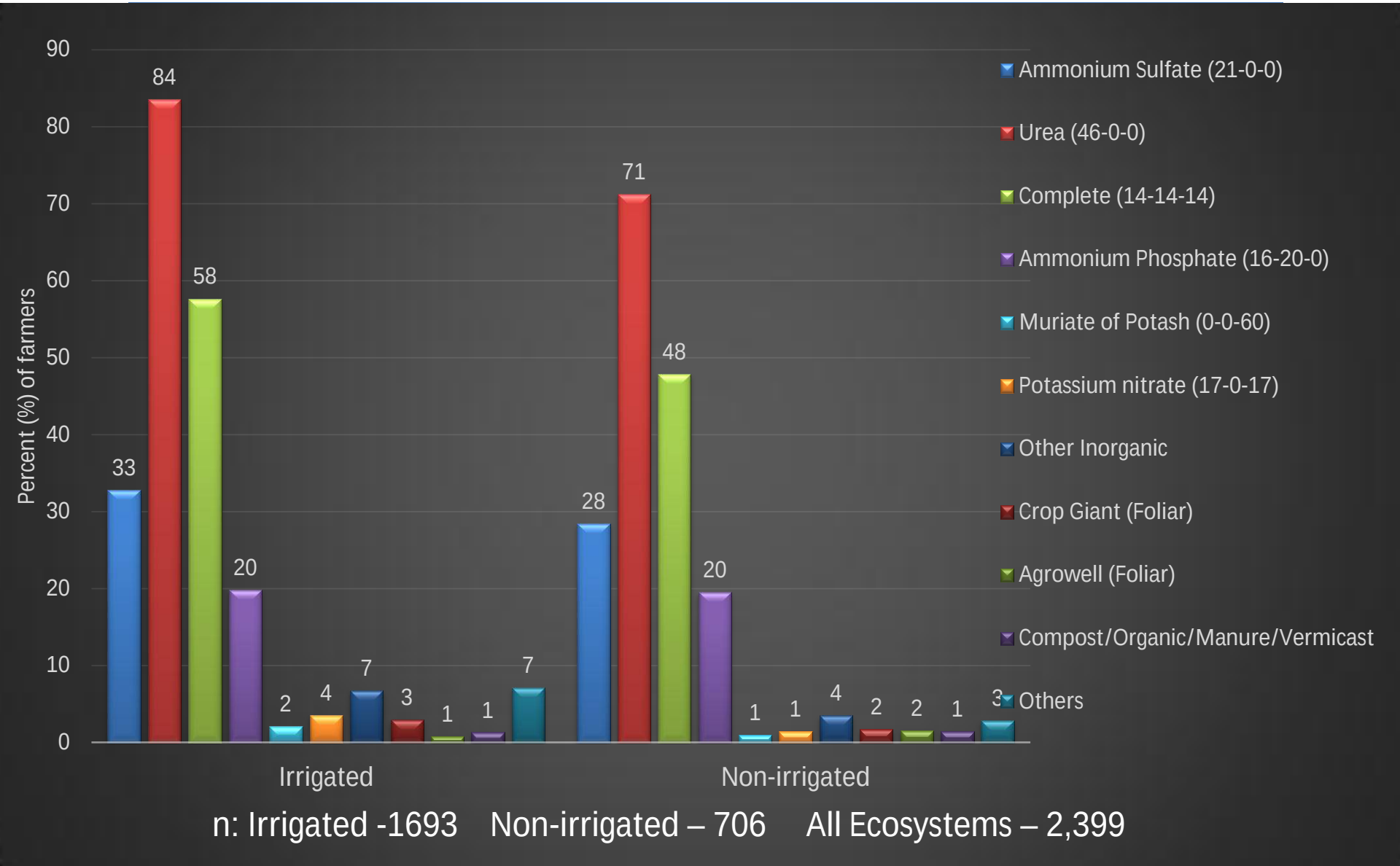
- One of the  major inputs in rice production
- Together with high-yielding rice varieties and good irrigation water management, fertilizer is one of the factors that contributed to the success of the Green Revolution in the 1970s and 1980s

# Users and Non-users of Fertilizers




n: Irrigated -1693 Non-irrigated – 706 All Ecosystems – 2,399

# Commonly Used Fertilizers

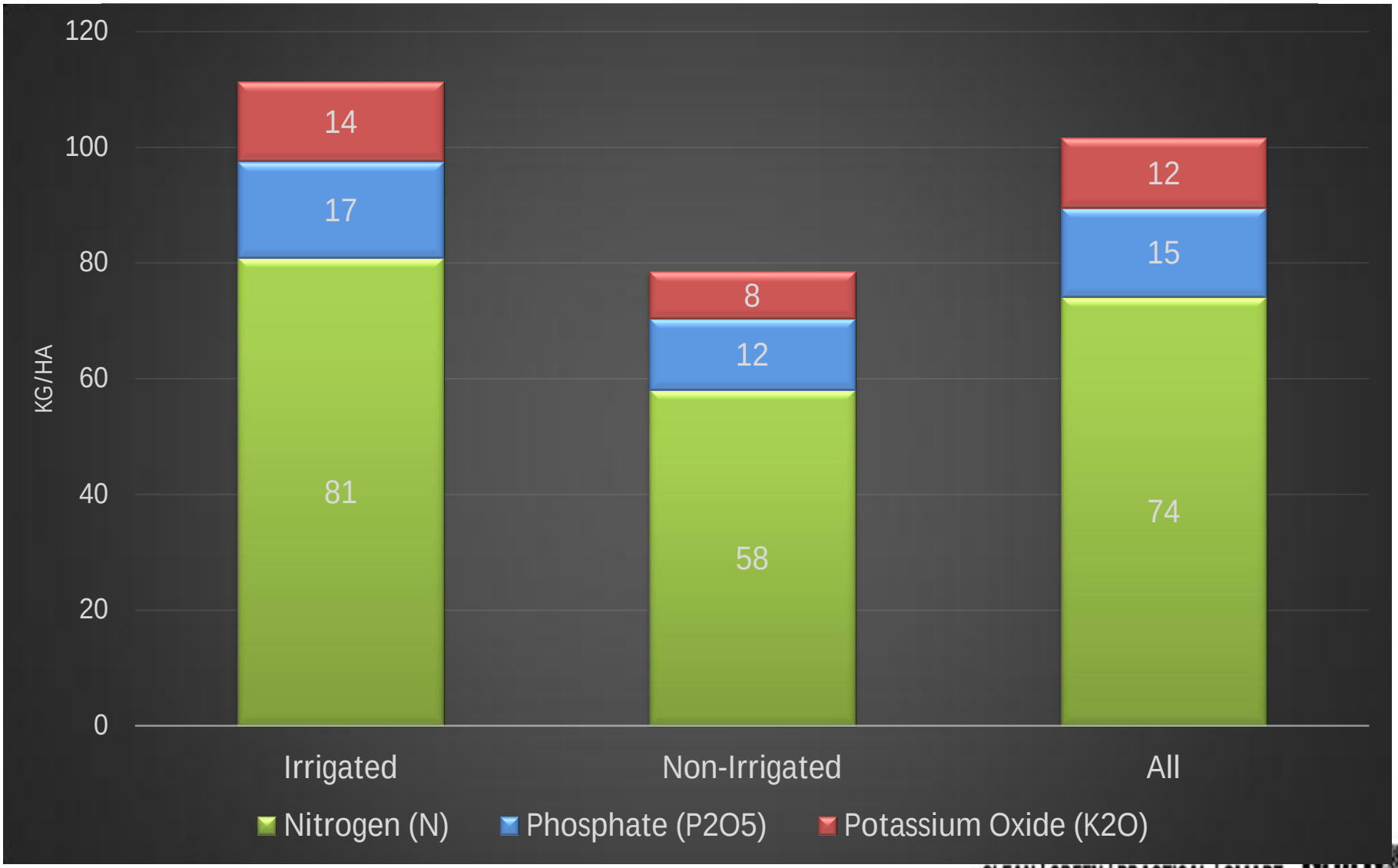



n: Irrigated -1693 Non-irrigated – 706 All Ecosystems – 2,399

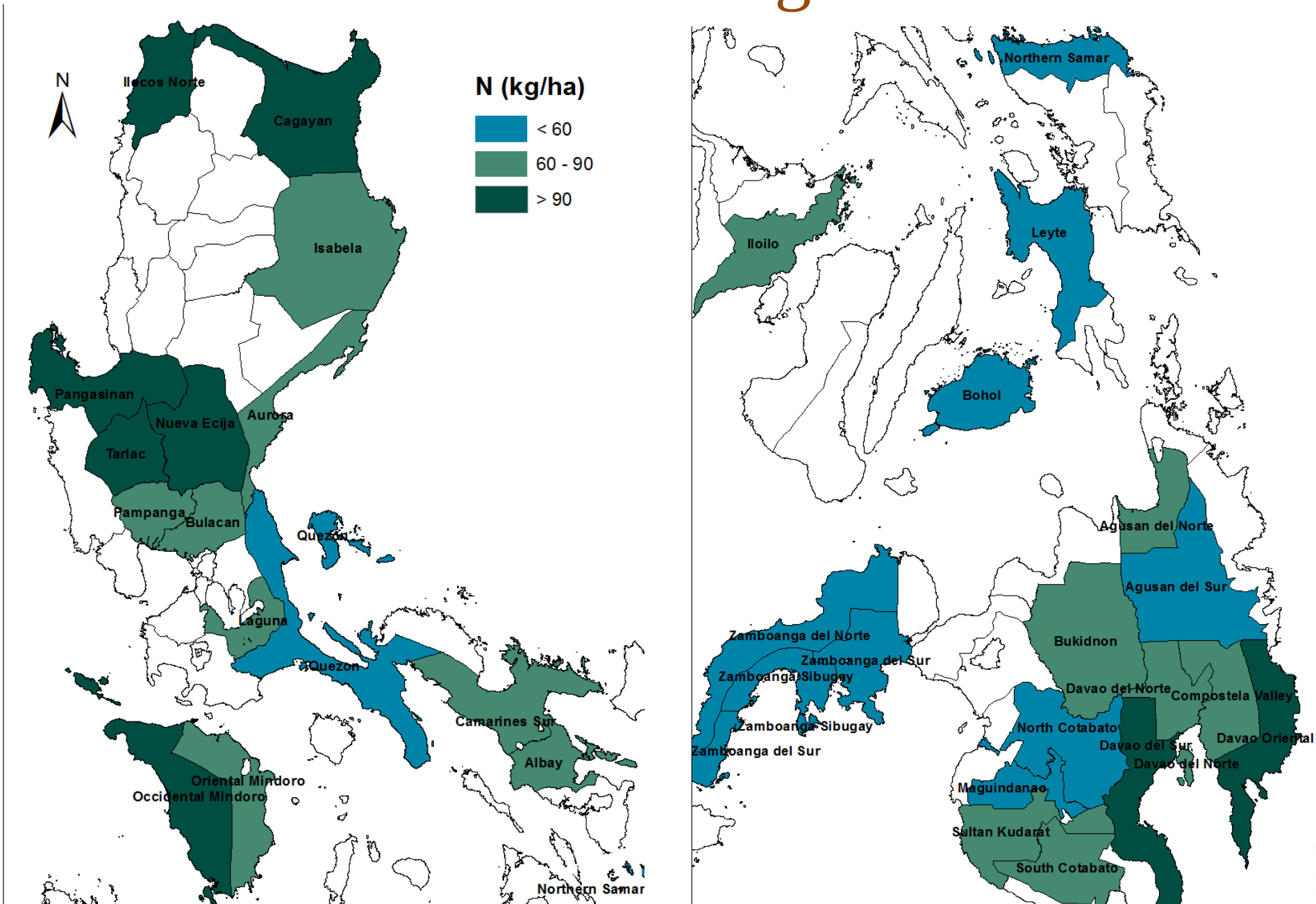
# Average Inorganic Fertilizer Use

| Inorganic Fertilizer | Irrigated | Non-Irrigated | All Ecosystems |
|---|---|---|---|
| Urea (46-0-0) | 2.08 | 1.56 | 1.92 |
| Complete (14-14-14) | 1.69 | 1.05 | 1.50 |
| Ammonium Sulfate (21-0-0) | 0.69 | 0.57 | 0.65 |
| Ammonium Phosphate (16-20-0) | 0.46 | 0.45 | 0.46 |
| Urea (45-0-0) | 0.39 | 0.21 | 0.33 |
| Potassium Nitrate (17-0-17) | 0.07 | 0.02 | 0.06 |
| Muriate of Potash (0-0-60) | 0.02 | 0.01 | 0.02 |
| TOTAL | 5.51 | 3.91 | 5.04 |

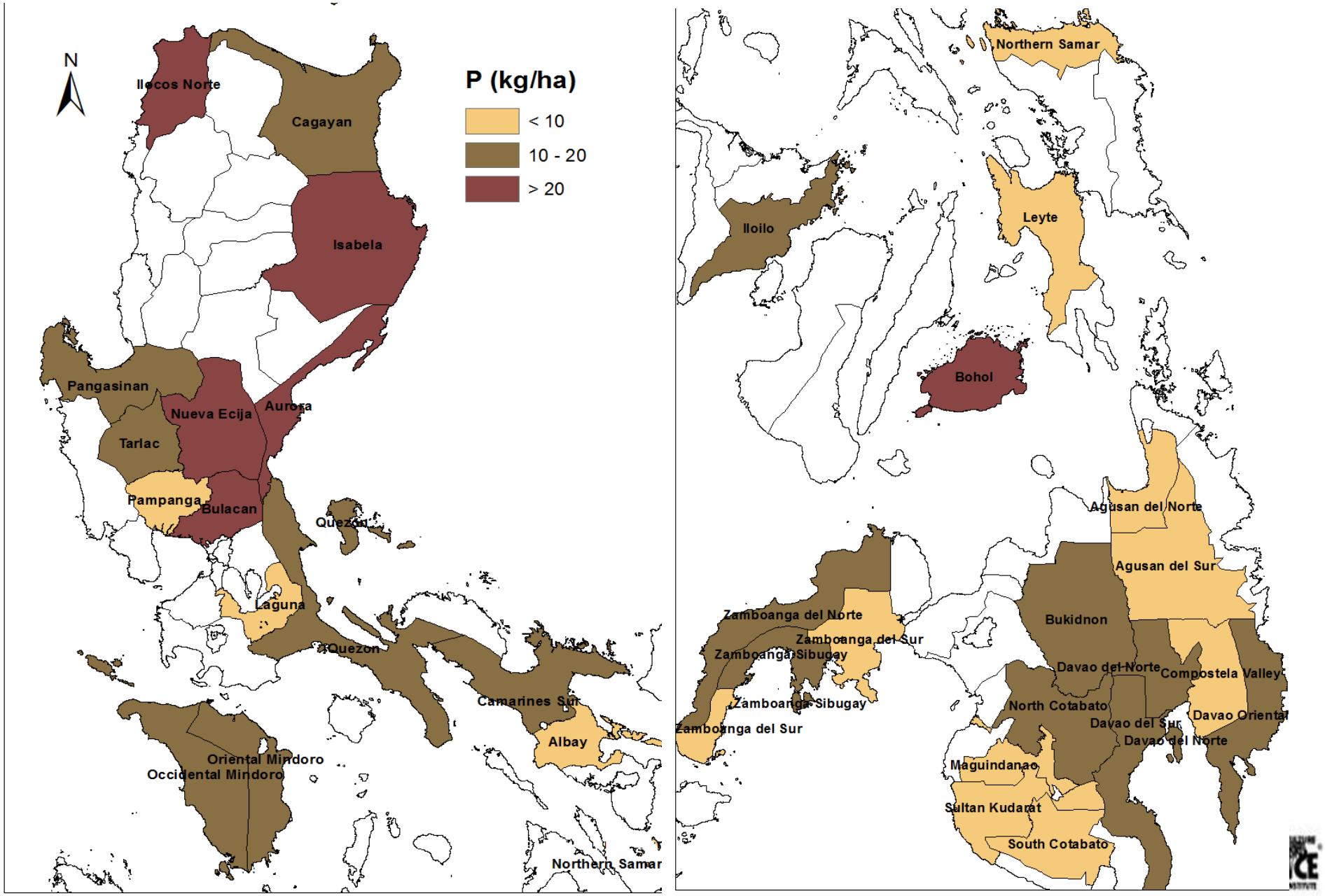
# Average N-$P_2O_5$-$K_2O$ used



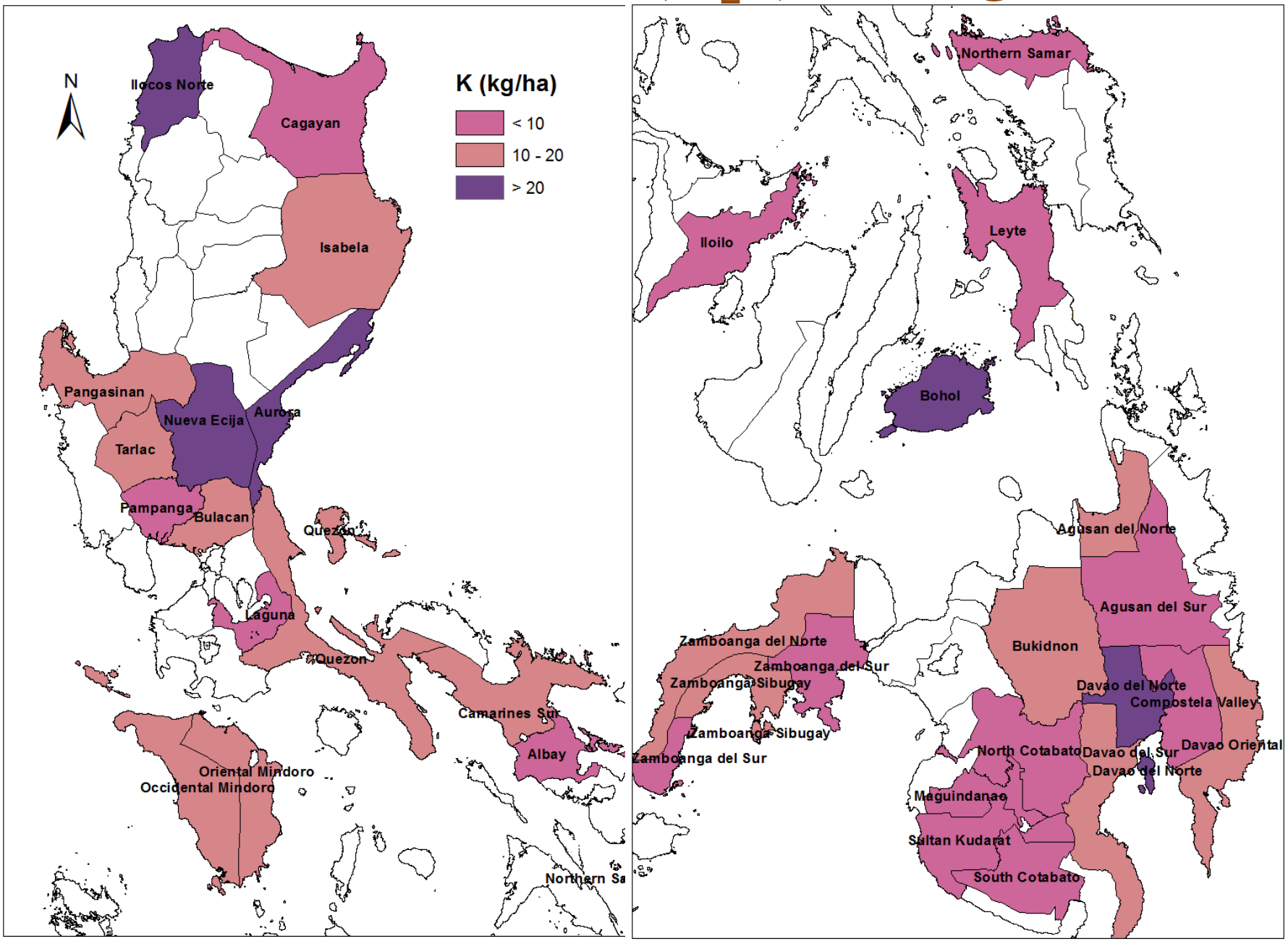
# N Use in Irrigated



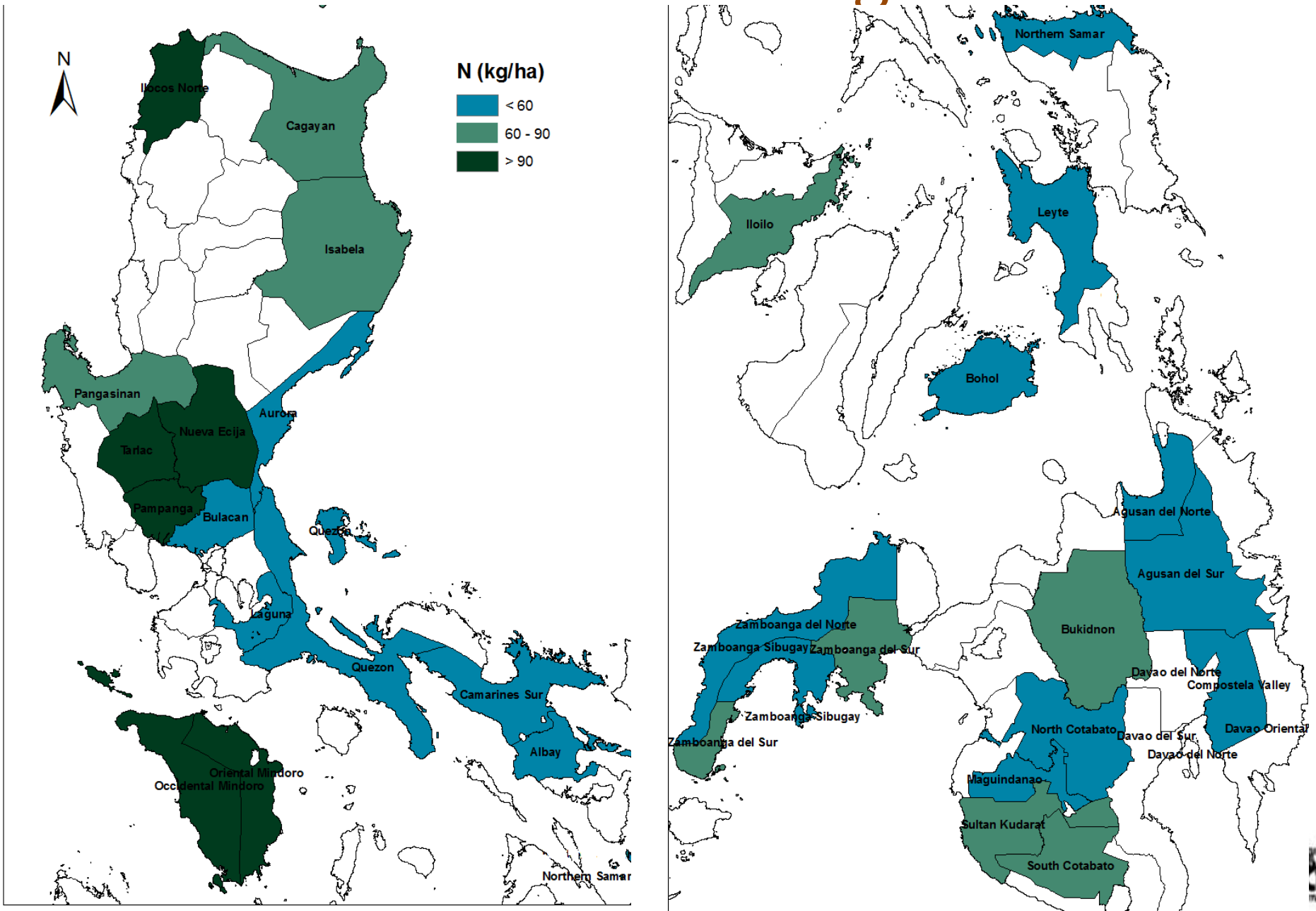
# Phosphate ($P_2 0_5$)Use in Irrigated



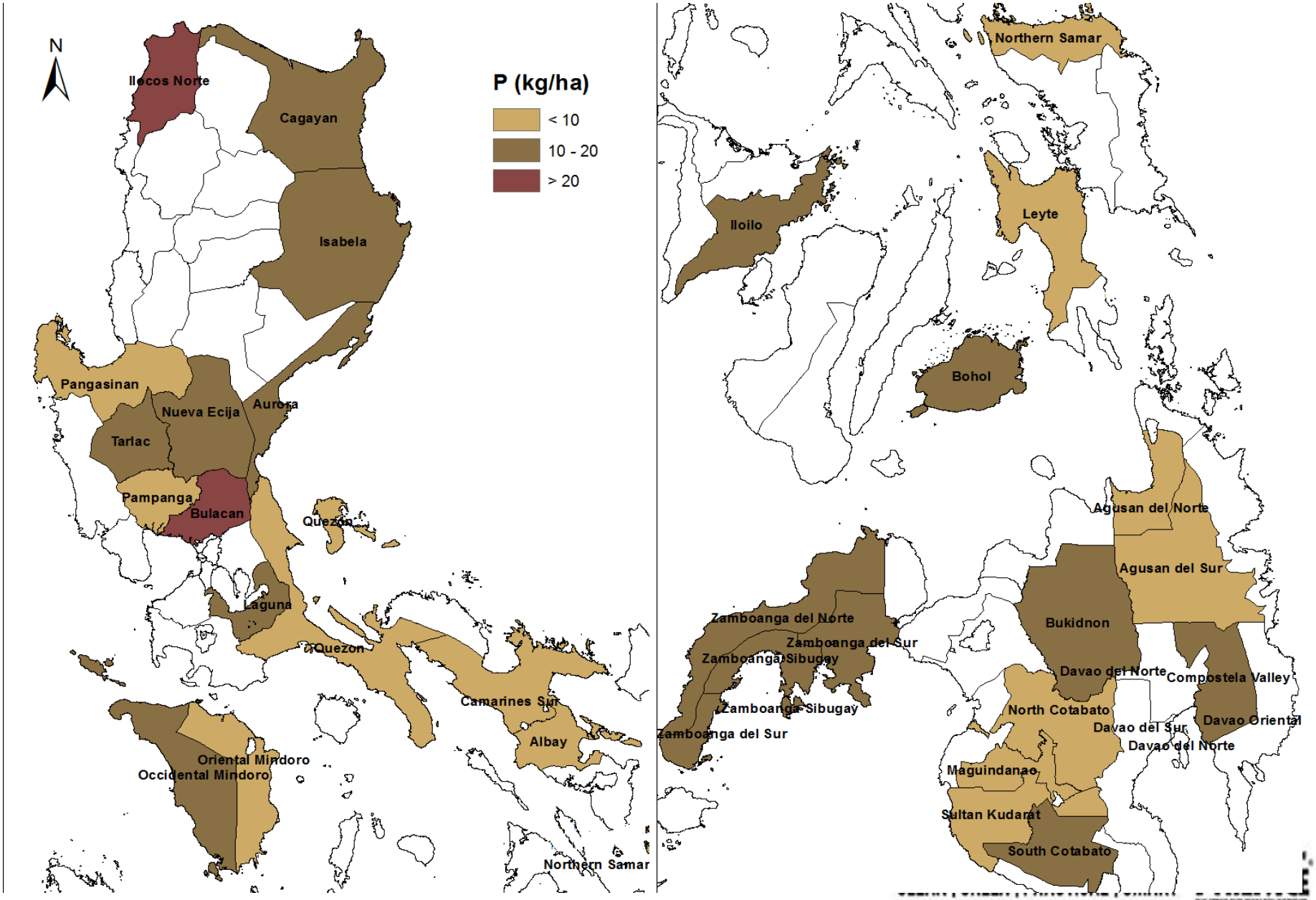
# Potassium Oxide ($K_20$) in Irrigated



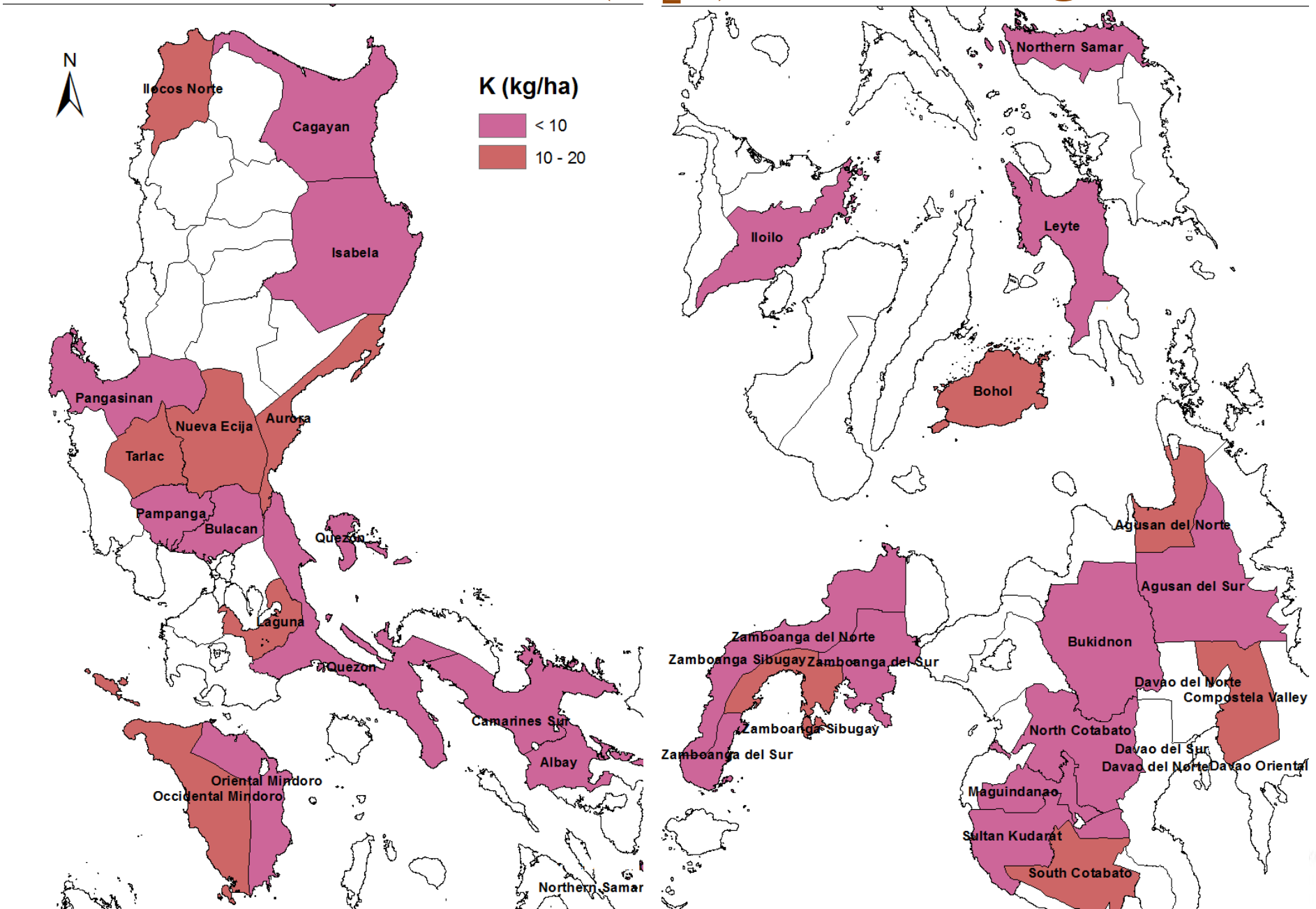
# N Use in Non-Irrigated



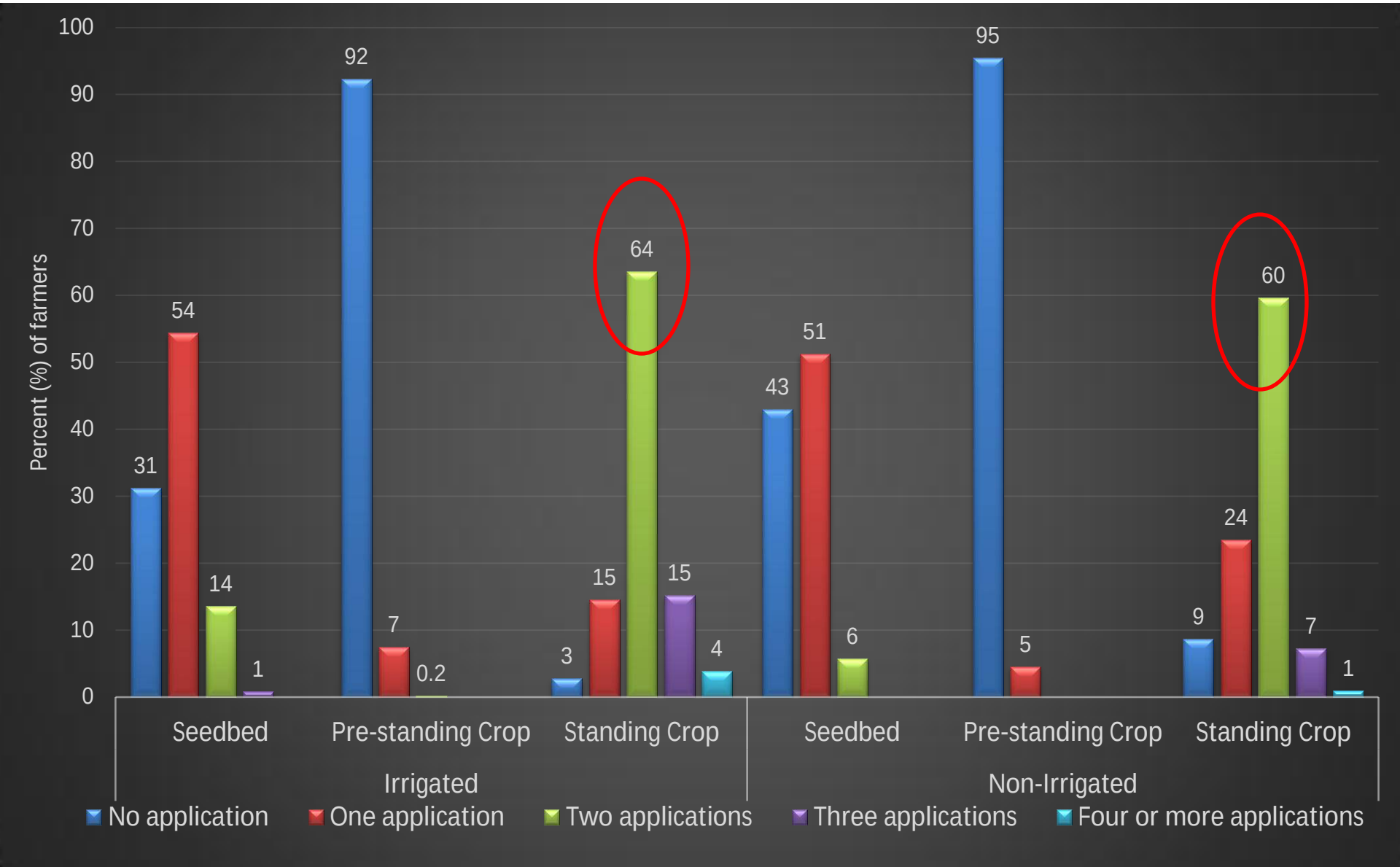
# Phosphate ($P_2 0_5$)Use in Non-Irrigated



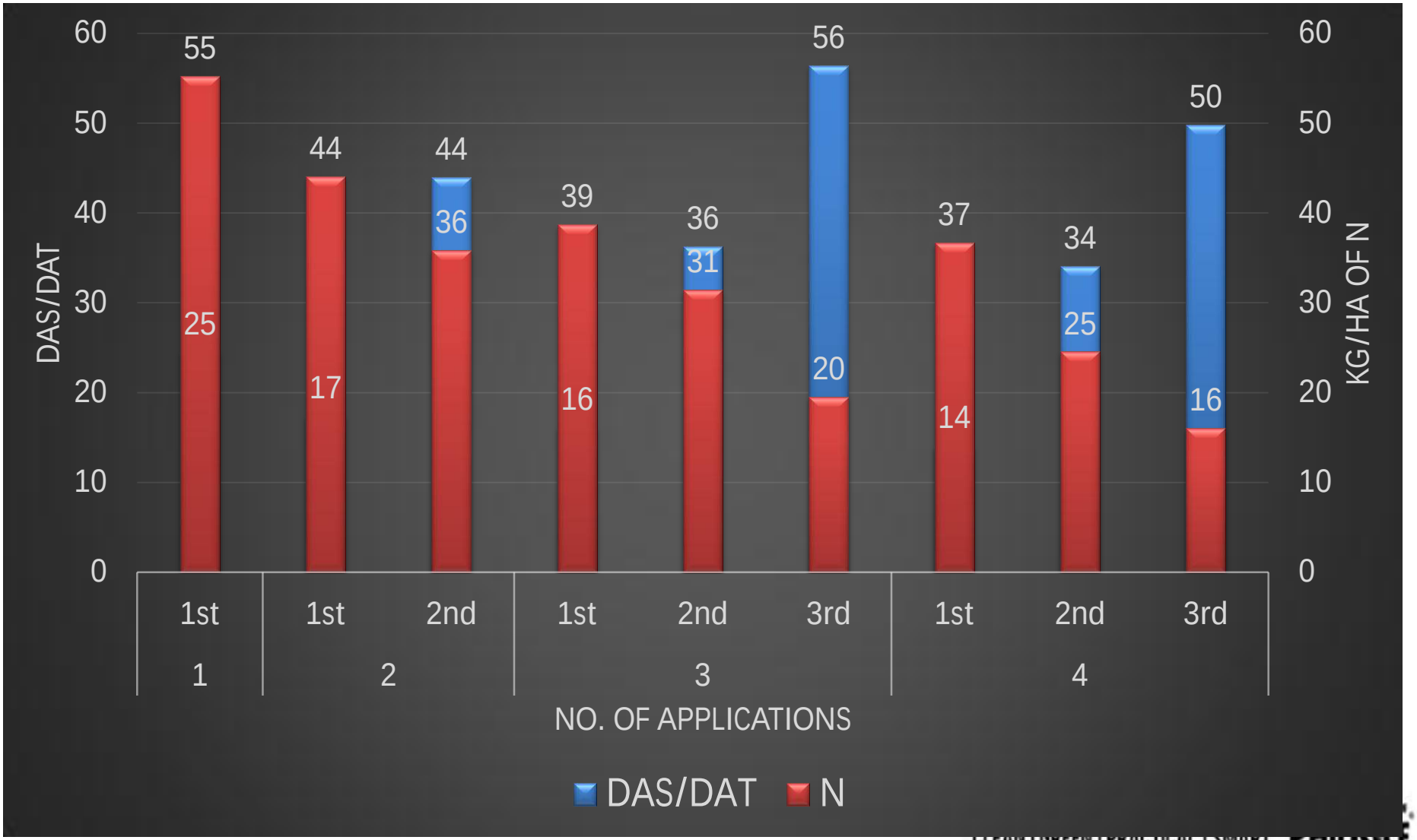
# Potassium Oxide ($K_20$) in Non-Irrigated



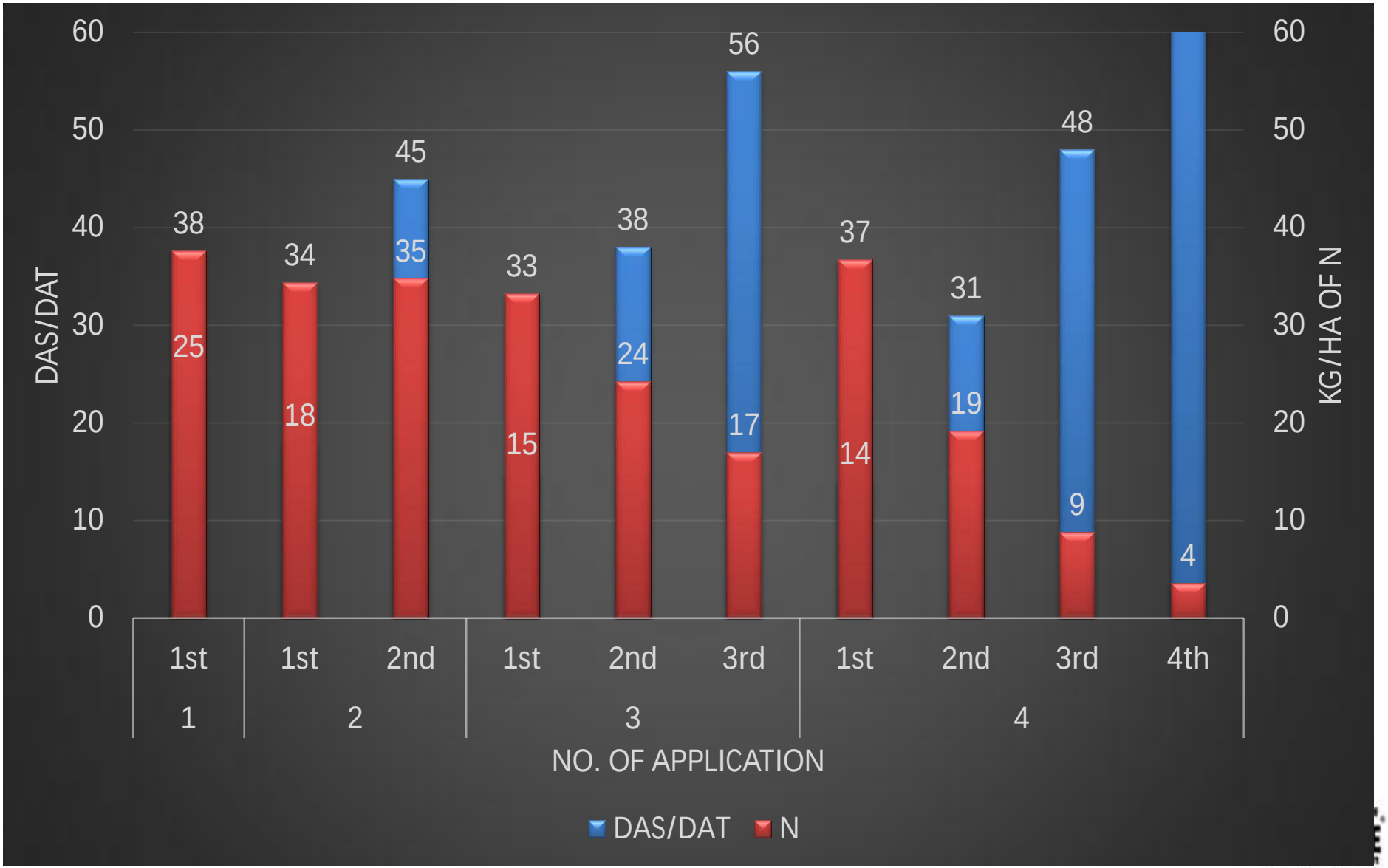
# Number of Applications



# Timing of N Application (Irrigated)



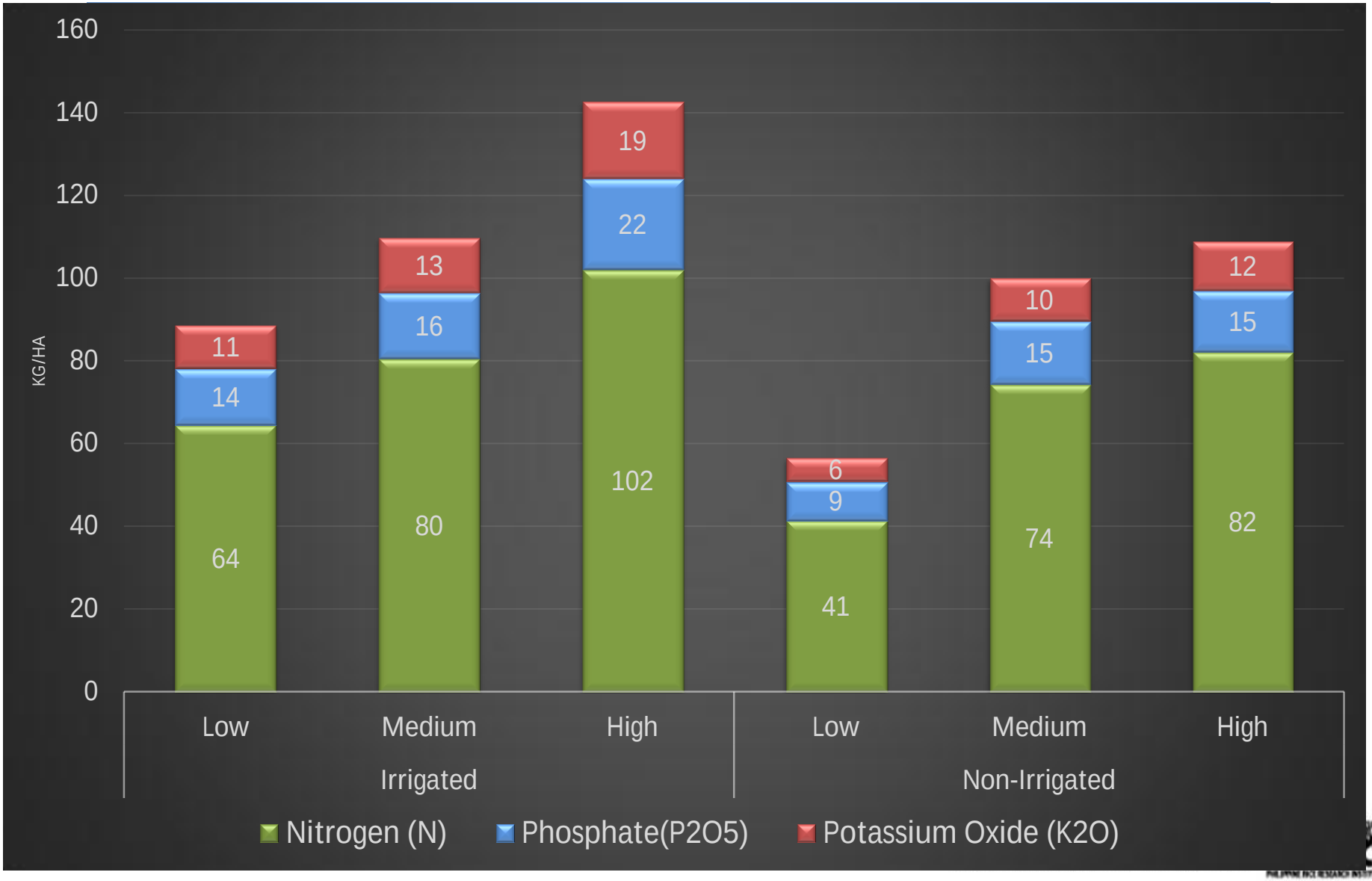
# Timing of N Application (Non-Irrigated)



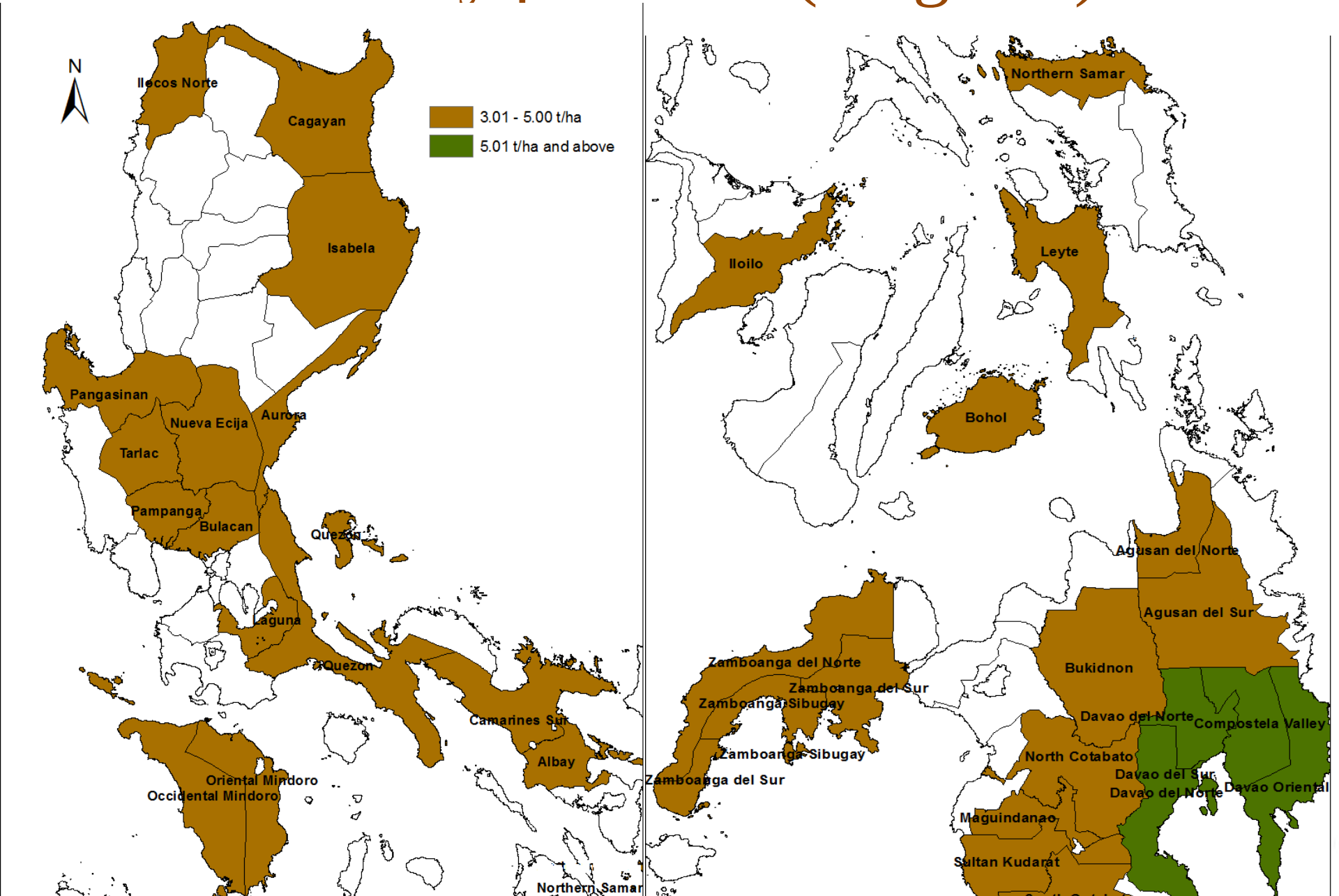
# Yield and Fertilizer Cost by Type of Fertilizer User

| Fertilizer Source/Users | Irrigated | | | Non-Irrigated | | |
|---|---|---|---|---|---|---|
| | n | Yield (ton/ha) | Fertilizer Cost (P/ha) | n | Yield (ton/ha) | Fertilizer Cost (P/ha) |
| Inorganic users | 1624 (96) | 3.96 | 6,622 | 641 (91) | 3.17 | 4,914 |
| Inorganic-organic users | 31 (2) | 4.16 | 7,222 | 10 (1) | 2.92 | 4,949 |
| Non-users | 38 (2) | 3.14 | 0 | 55 (8) | 2.12 | 0 |

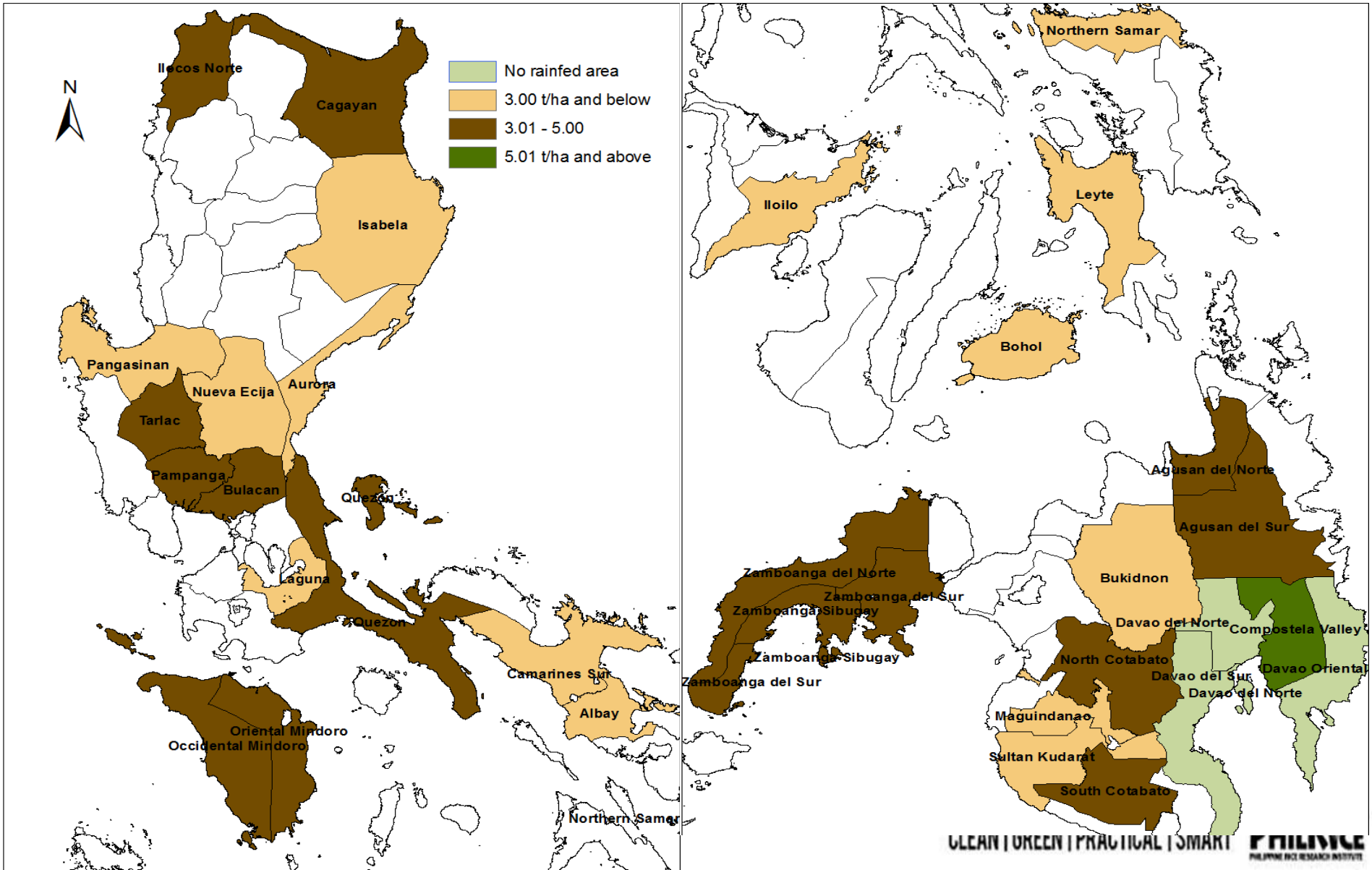
# $N\text{-}P_2O_5\text{-}K_2O$ Used by Yield Level



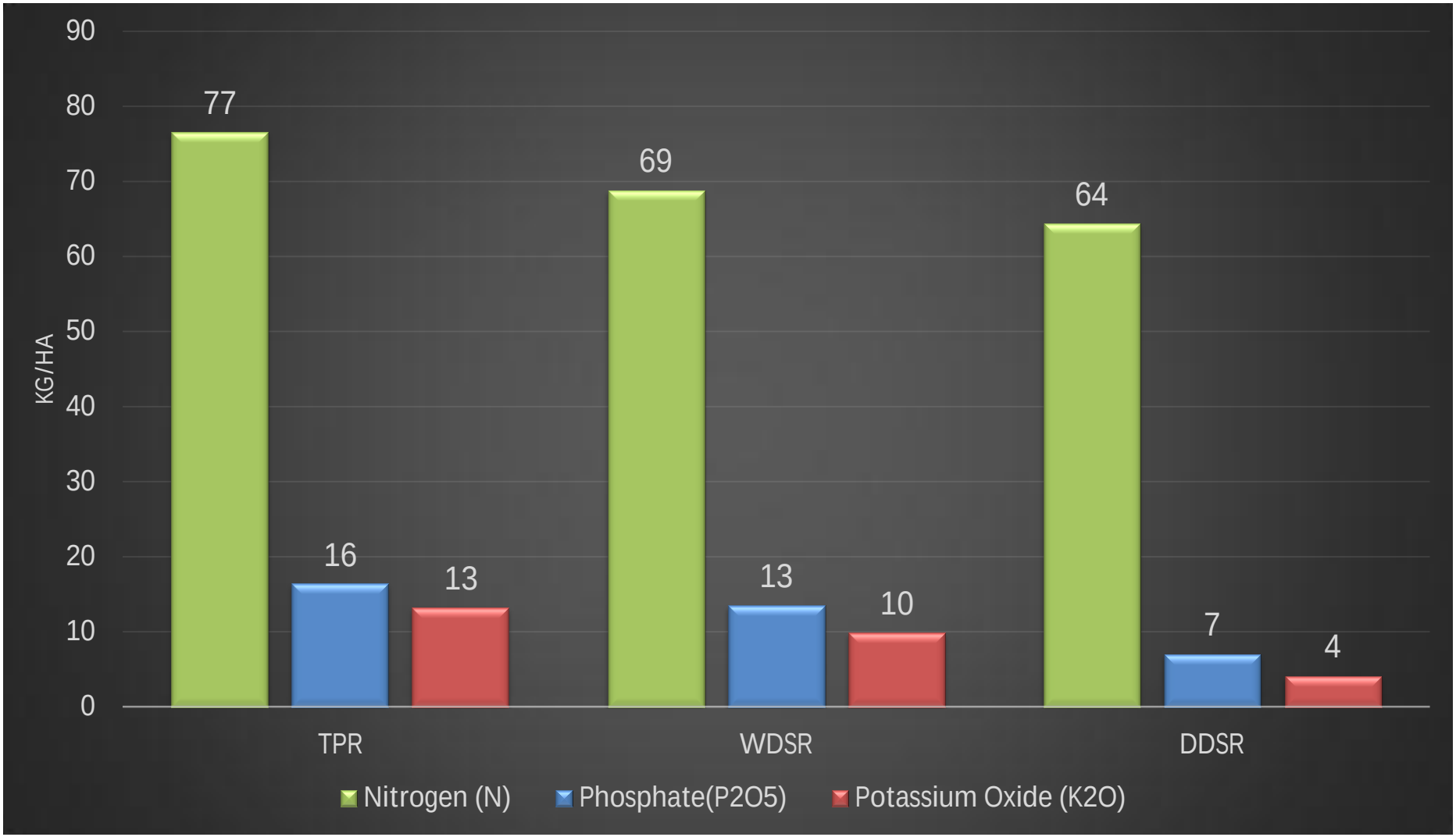
# Yield by province (Irrigated)



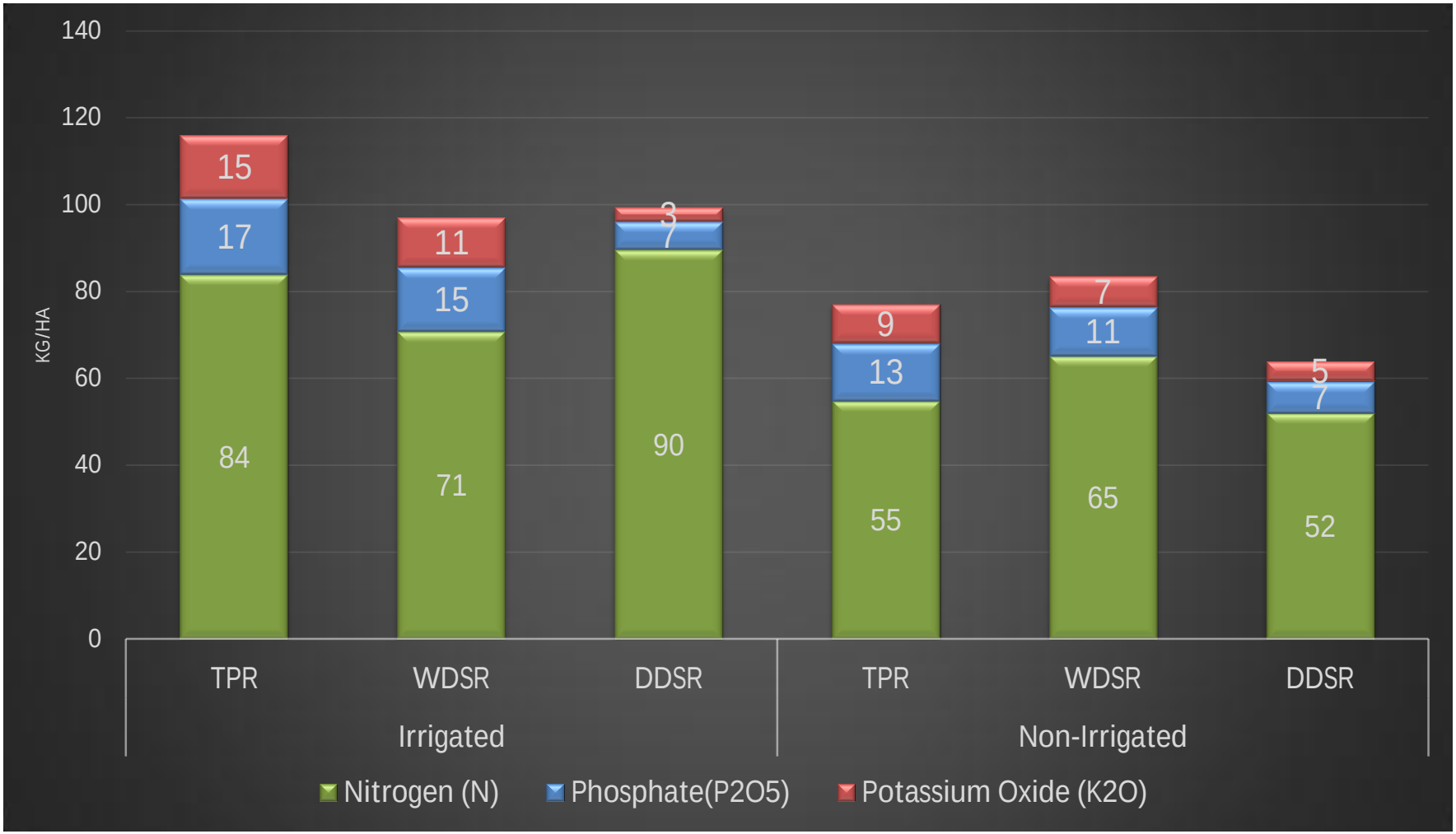
# Yield by province (Non-irrigated)



# $N\text{-}P_2O_5\text{-}K_2O$ by crop establishment



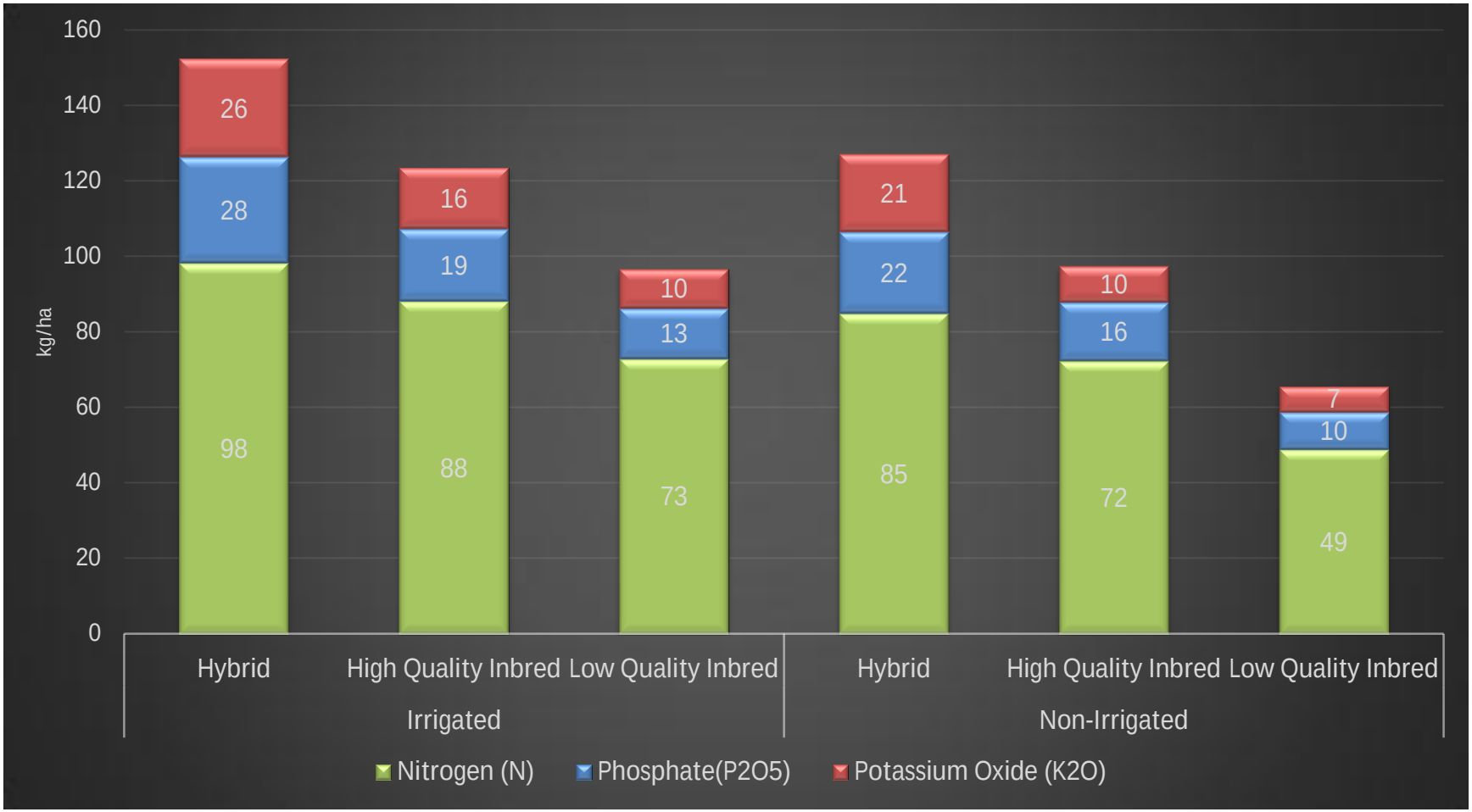
# $N\text{-}P_2O_5\text{-}K_2O$ by crop establishment and by ecosystem



# Yield and Fertilizer Cost by Crop Establishment

| Crop Establishment | Irrigated | | | Non-Irrigated | | |
|---|---|---|---|---|---|---|
| | n | Yield (ton/ha) | Fertilizer Cost (P/ha) | n | Yield (ton/ha) | Fertilizer Cost (P/ha) |
| Transplanted | 1265 (75) | 4.03 | 6,744 | 434 (61) | 3.15 | 4,440 |
| Wet Direct Seeded | 405 (24) | 3.73 | 5,727 | 232 (33) | 3.03 | 4,811 |
| Dry Direct Seeded | 19 (1) | 3.41 | 5,424 | 39 (6) | 2.58 | 3,904 |

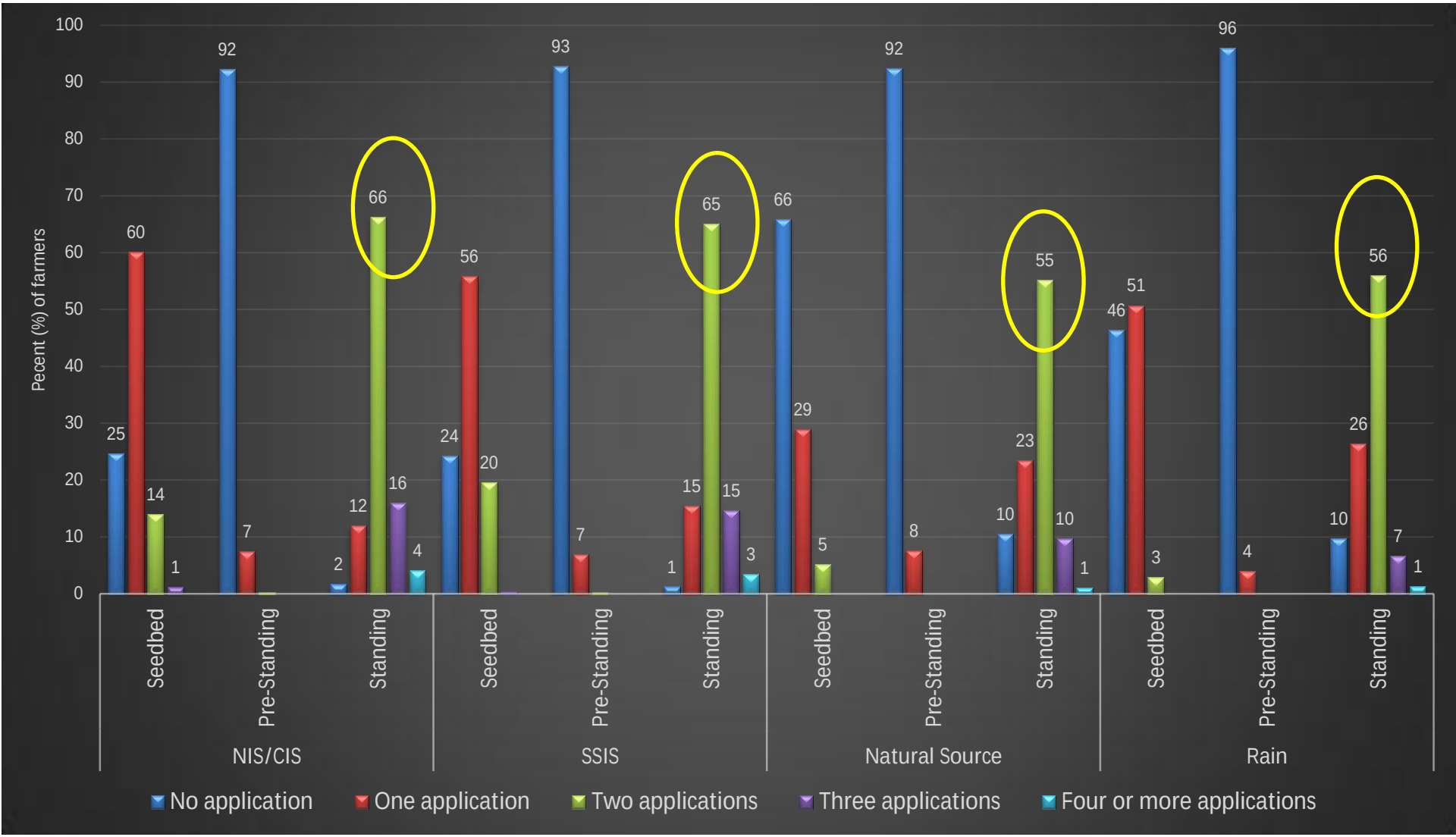
# $N\text{-}P_2O_5\text{-}K_2O$ by Seed Class



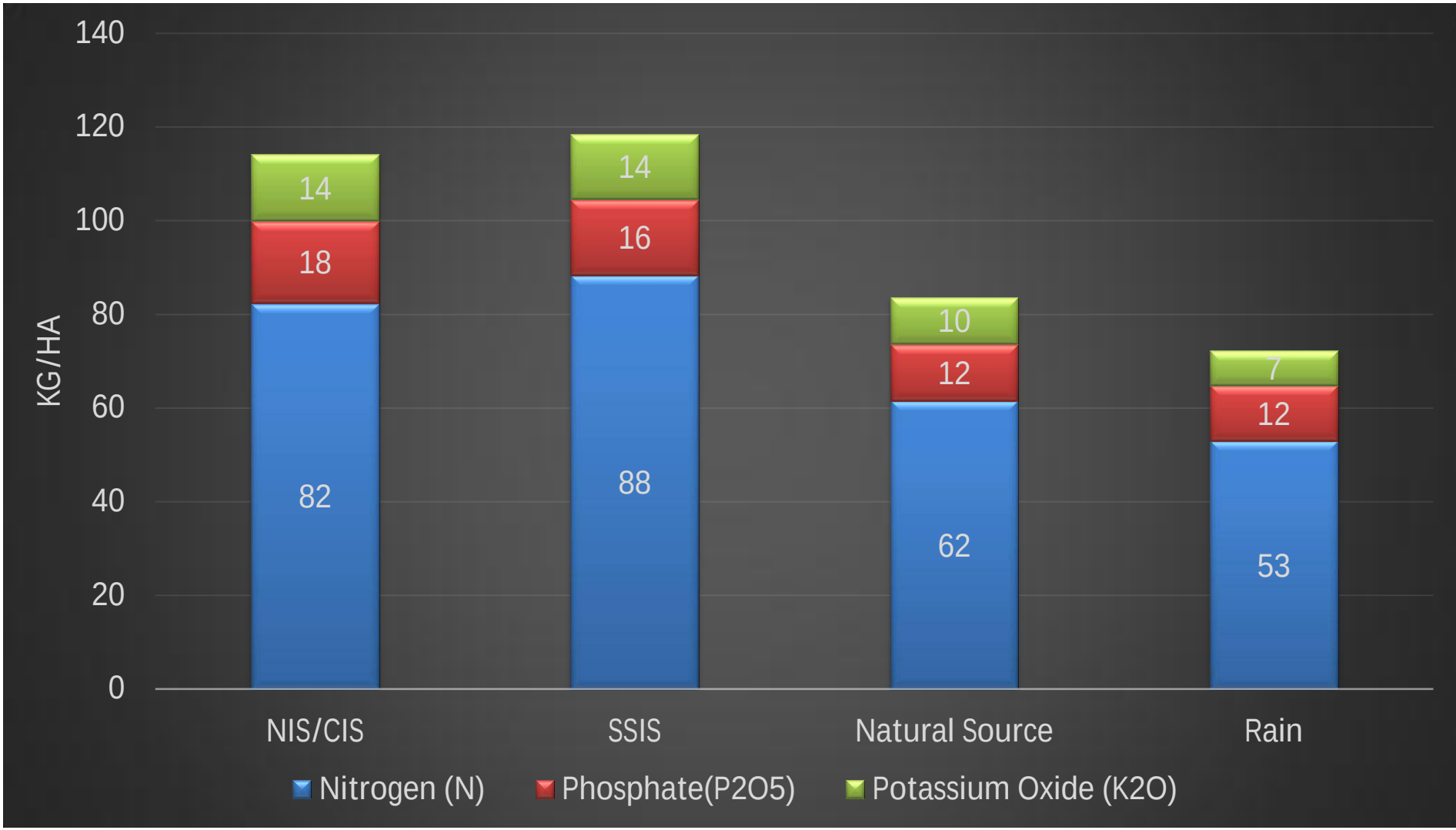
# Yield and Fertilizer Cost by Seed Class

| Seed Class | Irrigated | | | Non-Irrigated | | |
|---|---|---|---|---|---|---|
| | n | Yield (ton/ha) | Fertilizer Cost (P/ha) | n | Yield (ton/ha) | Fertilizer Cost (P/ha) |
| Hybrid | 82 (5) | 4.90 | 8,567 | 18 (3) | 3.87 | 7,257 |
| High Quality Inbred | 753 (44) | 4.05 | 7,124 | 250 (35) | 3.46 | 5,565 |
| Low Quality Inbred | 858 (51) | 3.76 | 5,724 | 438 (62) | 2.83 | 3,829 |

# Frequency of applications by water source



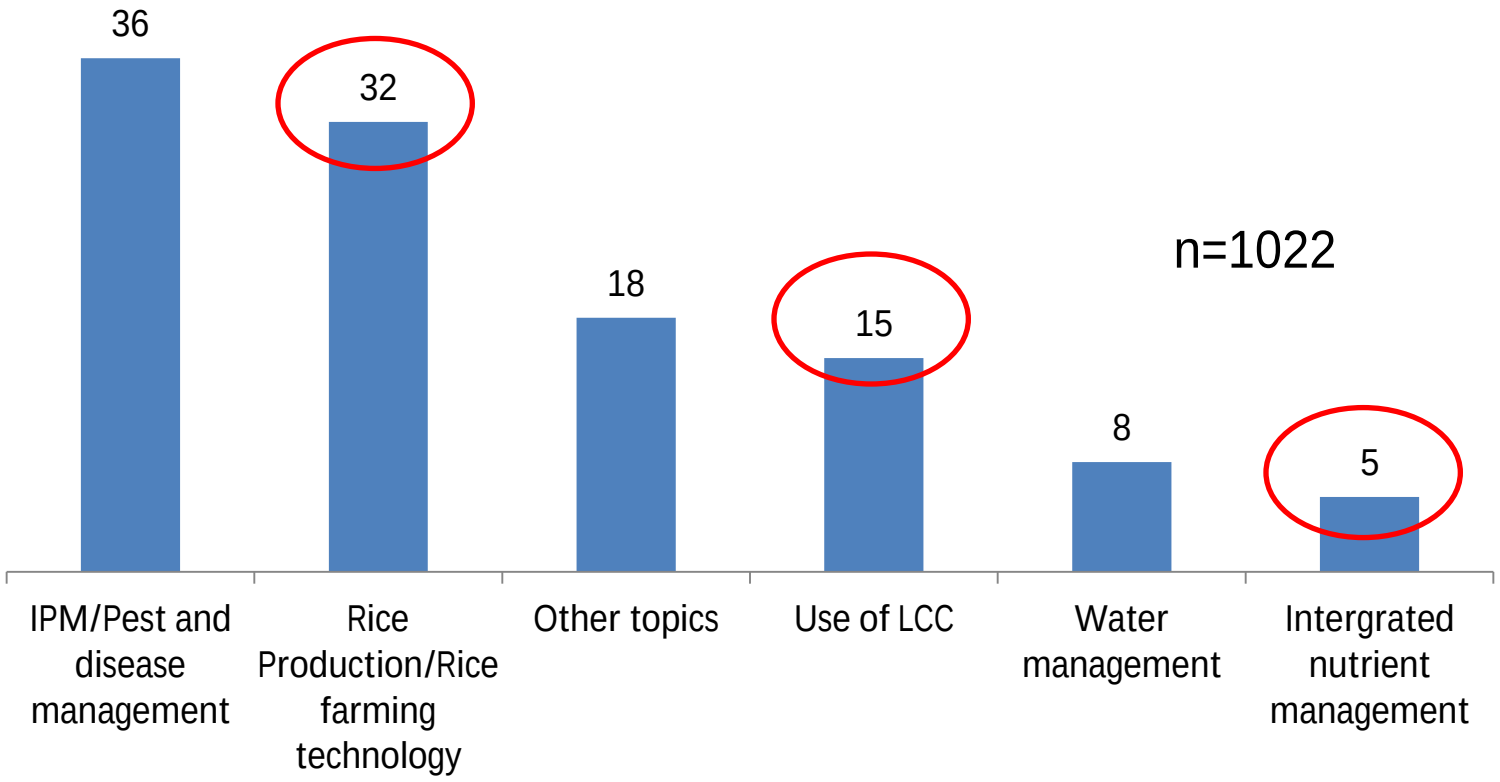
# $N\text{-}P_2O_5\text{-}K_2O$ used by water source



# Yield and Fertilizer Cost by Water Source

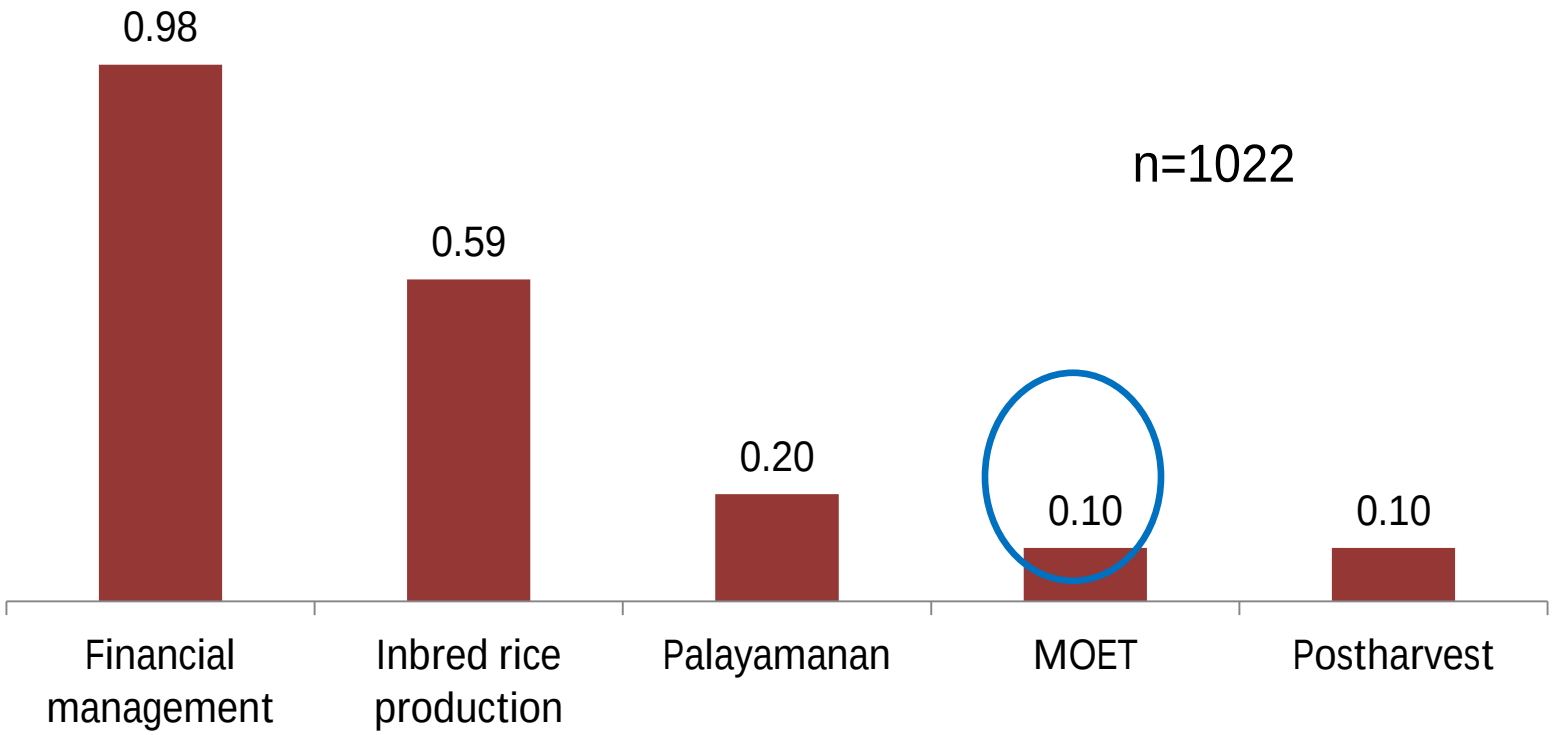
| Water Source | No. of Farmers | Yield (ton/ha) | Fertilizer Cost (P/ha) |
|---|---|---|---|
| NIS/CIS | 1167 (49) | 3.74 | 5,518 |
| SSIS | 401 (17) | 3.59 | 6,809 |
| Natural Source | 277 (12) | 3.11 | 4,457 |
| Rain | 554 (23) | 3.19 | 4,968 |

# Rice Trainings



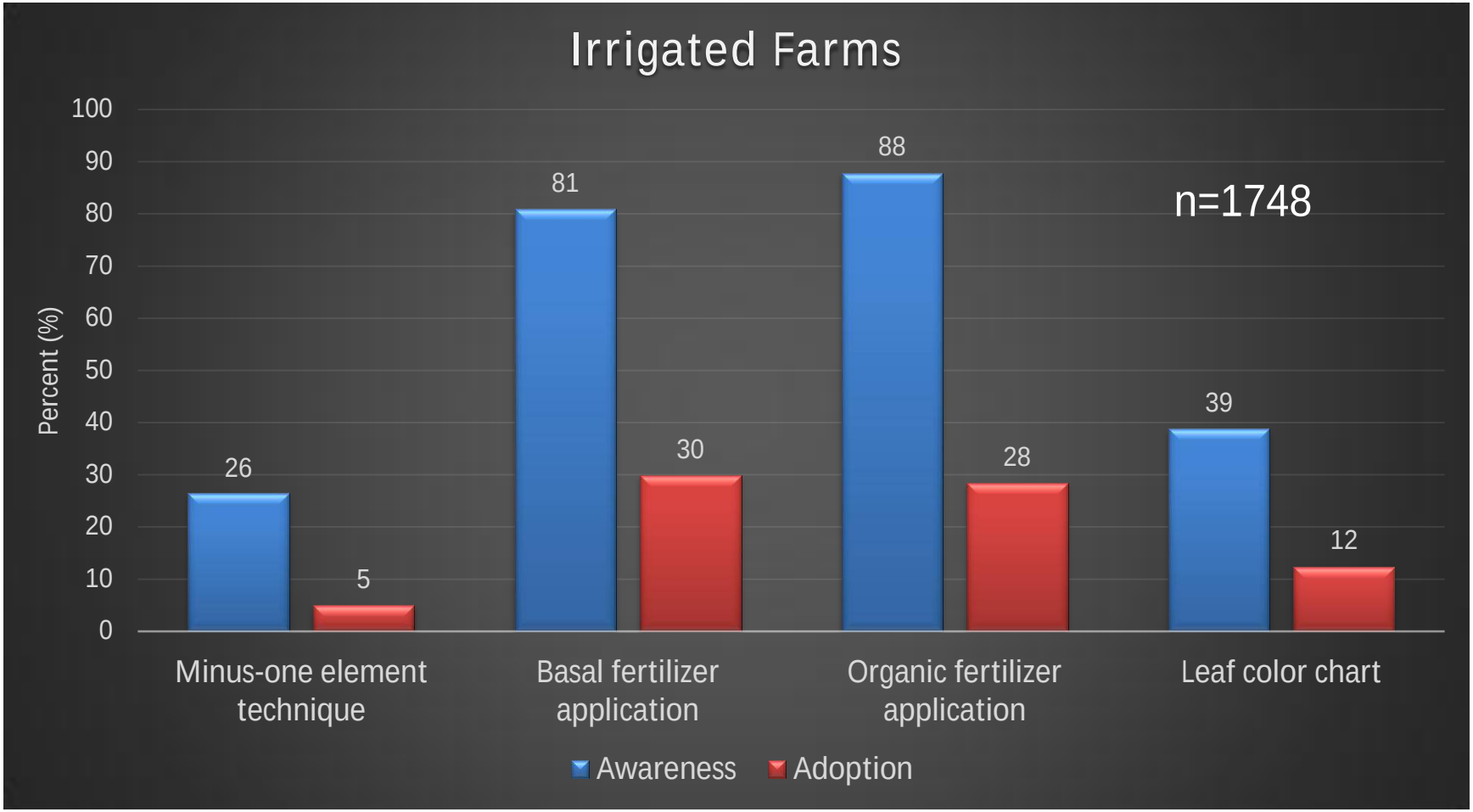

Top 5 trainings attended, 2009-2012

# Rice Trainings

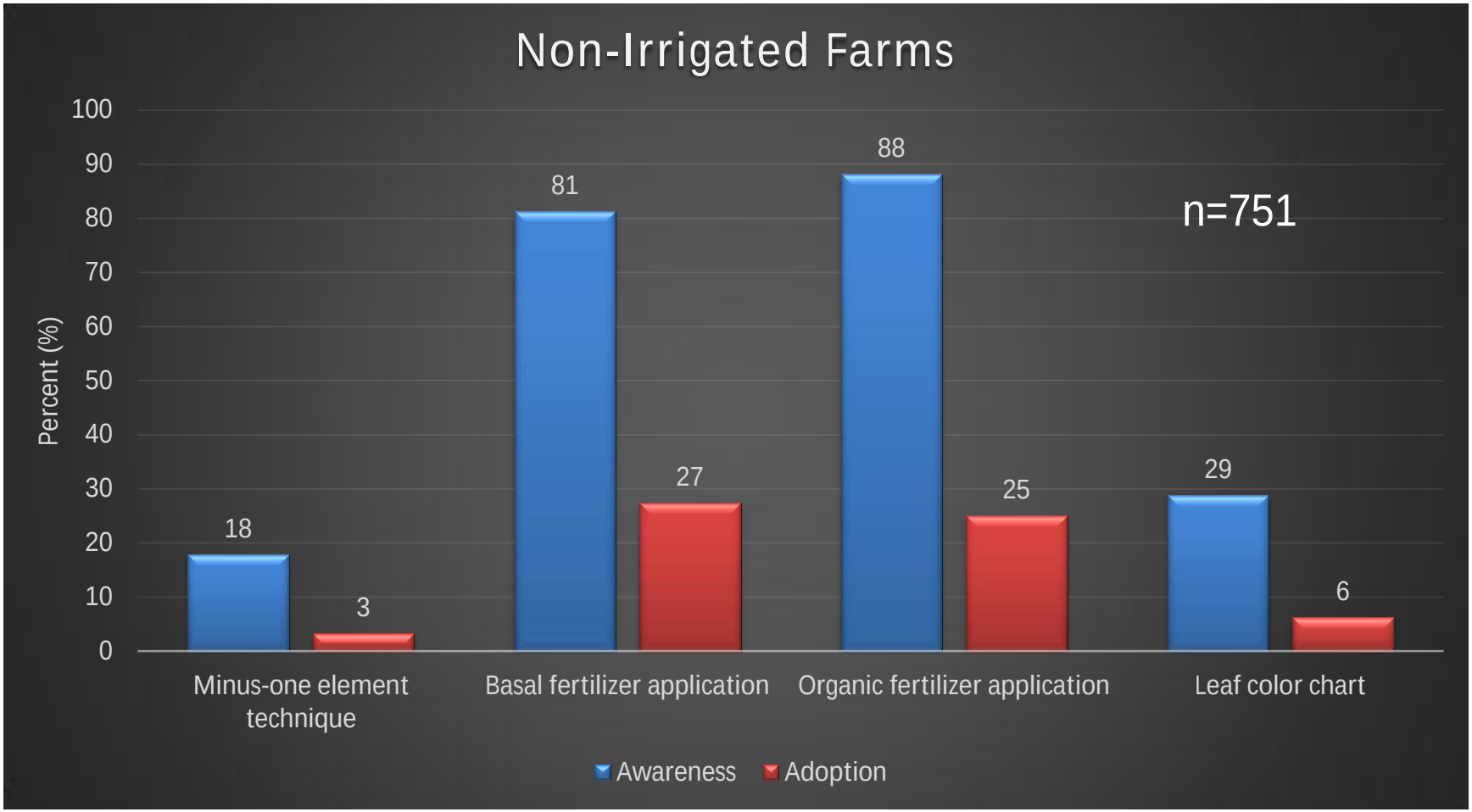



5 Least attended trainings, 2009-2012

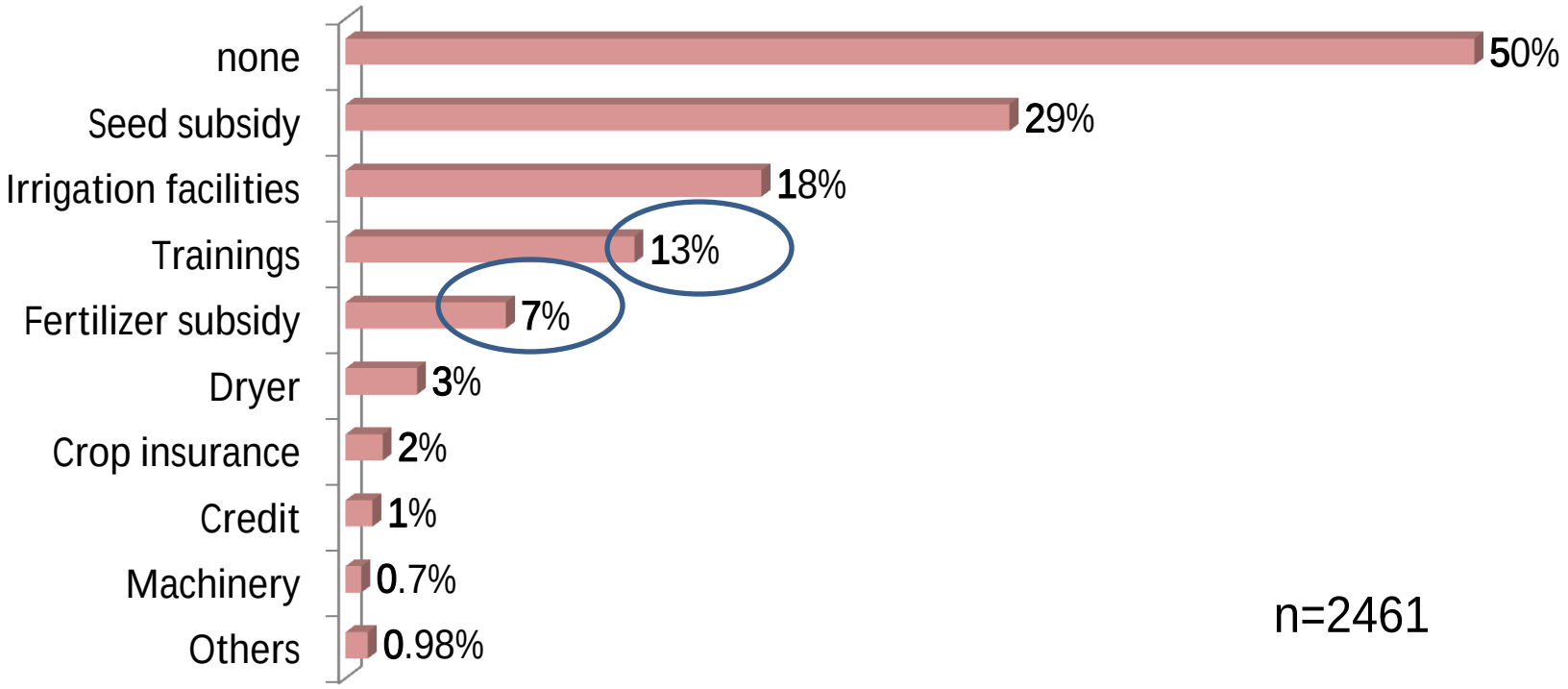
# Technology Awareness and Adoption on Nutrient Management Practices



# Technology Awareness and Adoption on Nutrient Management Practices

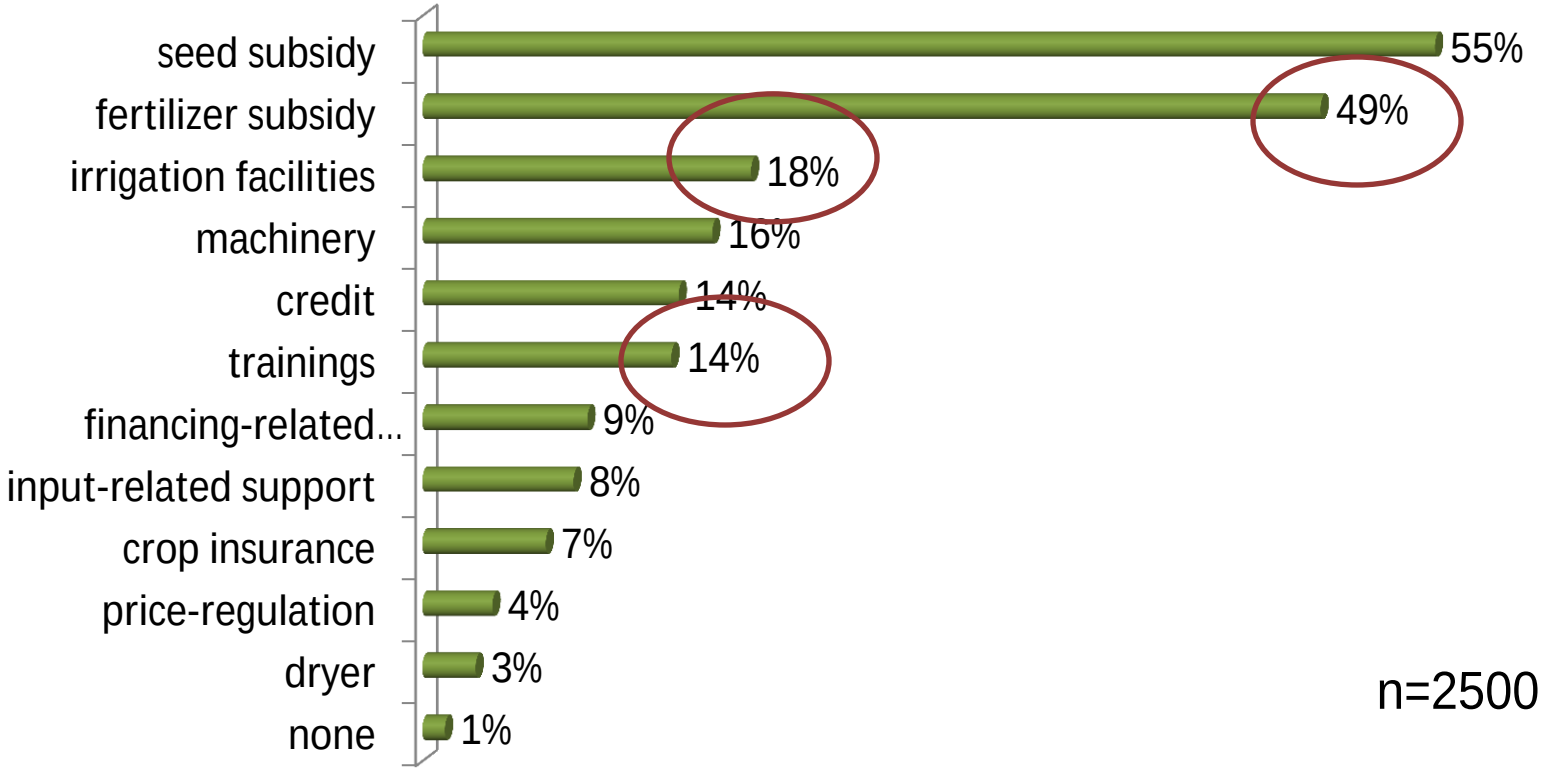


# Government Services Availed



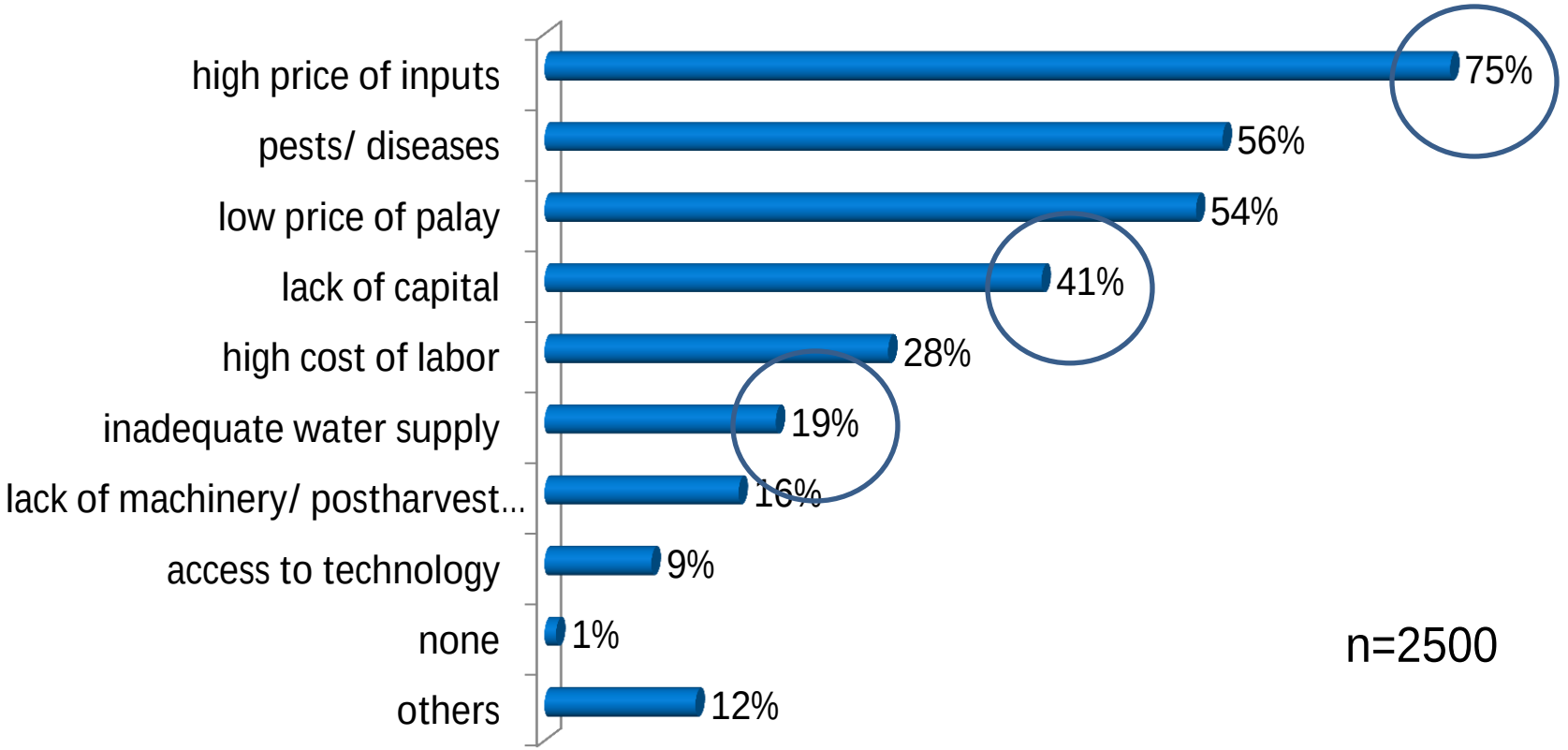

Percent of farmers who availed of government services, 2011 WS

# Government Services Wanted by Farmers




Percent of farmers who want to avail of government services, 2011 WS

# Problems Encountered in Rice Farming




Percent of farmers who reported problems, 2011 WS

# Summary

- Majority of the farmers are applying fertilizers
- Very few practiced the inorganic-organic fertilizer application
- The most common fertilizer grades are urea (46-0-0), complete (14-14-14), ammonium Sulfate (21-0-0) and ammonium phosphate (16-20-0).
- Foliar fertilizers such as Crop Giant and Agrowell were also popular to farmers.
- Majority of the farmers applied fertilizer twice
- N-P2O5-K20 use was 81-17-14 kg/ha for irrigated and 58-12-8 kg/ha for non-irrigated

# Summary

- Farmers who applied higher levels of fertilizers obtained higher yields
- Farmers serviced by NIS/CIS and SSIS applied higher amounts of NPK than farmers having other sources. As expected, the sufficiency of irrigation water increased the level of fertilizer application
- Very low awareness and adoption of currently available nutrient management technologies


# Thank you