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# RICE & BIODIVERSITY

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# CONSERVATION & RICE IN THE GREAT LAKE

**Rice production is a key influence on the Tonle Sap Stronghold.** The intensified production of rice at scale impacts the ecosystems around the lake and species of conservation interest. Further, rice production in *specific geographies* creates specific threats and impacts to biodiversity.

Specifically, rice cultivation in or near ecologically significant areas like **grasslands, wetlands, and flooded forests** is a crucial conservation issue.

Thus, the health of the ecosystems in the Tonle Sap depend on the success of rice farmers in and around conservation areas.

A shift away from traditional agriculture activities to more intensified agriculture production with increased irrigation and multiple cropping cycles has led to significant **ecological threats**, including:

- loss of grassland habitat (both natural and semi-natural grassland) and loss of breeding habitat
- overuse of chemical fertilizers, herbicides, insecticides, and other inputs
- decreased water quality from overuse of inputs
- reduced access to food, such as insects, from the from overuse of inputs

- threats are magnified when farmers switch to 2 or 3 cropping cycles a year

To address this, WCS promotes sustainable rice farming practices through the use of the **Sustainable Rice Platform (SRP) Standard**. WCS is committed to improving the lives of farmers, particularly those living near conservation areas. By connecting farmers to markets that value environmentally friendly rice, WCS aims to benefit both farmers and the environment.

Government Protected Areas that legally protect grasslands, such as the **Bengal Florican Conservation Area (BFCA)** are very high risk for conversion to agriculture. WCS works with farmers in and around such critical ecosystems. Our farming engagements are paired with conservation education, land tenure and zonation awareness, and livelihood support.

WCS collaborates with SRP, with the vision that this a platform could unite government, the private sector, and agriculture actors for a more sustainable rice sector.



# FARMING: TRADITIONAL PRACTICES AND NEW THREATS

**Traditional rice farming near the Tonle Sap Lake was compatible with Bengal Floricans' breeding.** Farmers grew a long-term rice variety in the rainy season and then left fields fallow during the dry season. The dry season corresponds with the Florican breeding season. However, modern rice cultivation methods, including irrigated, dry-season cropping, overlaps with breeding season and reduces suitable habitat for this endangered bird.

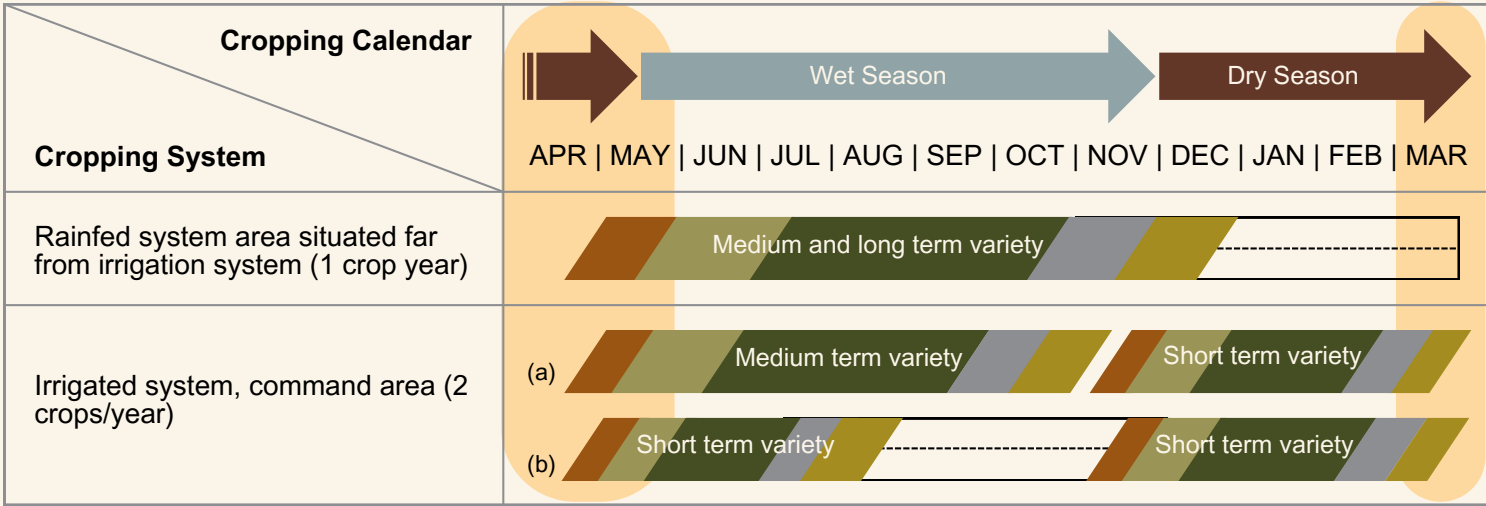
## What are the farming impacts, exactly?

- Traditionally, farmers in the Tonle Sap Lake area cultivated medium to long-term rice varieties or floating rice in the rainy season, followed by a fallow period from January to May.
- This fallow period aligns with the Bengal Florican's breeding season.
- However, modern irrigated rice cultivation, especially with medium- and short-term varieties, has led to an additional rice crop that overlaps with the bird's breeding season.
- To protect grasslands, their ecosystem services, and local biodiversity, it's crucial to ensure that some fields are left fallow throughout the breeding season each year, on a rotational basis.

The below cropping calendar demonstrates the rainfed system and the irrigated systems of the farmers in this area.



The Florican breeding window is below in orange.



■ Land Preparation

■ Broadcasting

■ Growth to maturing stage

(a) Irrigated system not flood prone

■ Drainage

■ Harvest

---- Fallow period

(b) Irrigated system flood prone

■ Bengal Florican breeding window





# MITIGATION INTENSIFICATION: SRP RICE

## Sustainable Rice Platform

The SRP is a global multi-stakeholder alliance established in 2011. SRP was originally convened by the International Rice Research Institute (IRRI), the United Nations Environment Programme (UNEP) and Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH (GIZ).

SRP, as an independent membership association, aims to transform the global rice sector by:

- Improving smallholder livelihoods
- Reducing the social, environmental and climate footprint of rice production
- Offering the global rice market an assured supply of sustainably produced rice to meet the growing global demand for rice.

Registered SRP Projects are implemented at varying scales in Asia, Africa, Europe and the Americas.

**WCS Cambodia supported the establishment the National Chapter in Cambodia and remains on the Advisory Board. The aim is to facilitate a widespread uptake of SRP rice production, so there is a national level change that shifts to more sustainable rice production across the country.**

The SRP Standard covers 8 themes with 41 requirements for farmers. These themes span pre-planting, pest management, water use, health and safety, up to post harvest.

**Specifically for biodiversity**, according to the SRP Standards, SRP rice cannot contribute towards the destruction of habitat used by critically endangered species. In the context of the project area, applying SRP principles can be translated into the following practices:



**Better quality paddy and reduced input costs** for higher net income.



**Improved farmer health and safety** for a stronger farmer group which is more resilient to climate change impacts and to ensure safety for consumers.



**Proper and efficient nutrient and water use** with good integrated pest management for lower greenhouse gases emissions and reduced environmental impacts.



**Adoption of cropping practices** that contribute to Bengal Florican conservation objectives.



# SRP CONTEXT

**The SRP methodology focuses on promoting sustainable rice production practices by setting standards and facilitating market linkages.**

The Standard promotes sustainable rice production by prioritizing resource efficiency, reducing chemical input use, and promoting biodiversity conservation.

Key practices encouraged by the SRP Standard include efficient water management through techniques like alternate wetting and drying. SRP emphasizes *minimizing* the use of chemical fertilizers and pesticides, promoting integrated pest management, and prioritizing non-chemical bird and pest control methods. To protect both farmers and the environment, the Standard also includes provisions for worker safety and bird-friendly practices.

By adopting these practices, rice farmers can contribute to a more sustainable and environmentally friendly rice sector.

These practices can help maintain ecosystem health, support wildlife populations, and contribute to a more sustainable agricultural system.

## **What are the conservation linkages with the WCS landscapes?**

Supplemental to the Standard, the WCS team focuses on:

- **Grassland monitoring** – with our GIS team at the project level
- **SMART Patrolling** – supporting rangers and communities in PAs
- **Conservation education** – with farmers and communities
- **Bird nest monitoring**– with farmers and communities
- **Integrated Pest Management** – with farmers near areas of conservation interest

## **How does this help?**

To mitigate impacts on Bengal Florican, it is essential that participating farmers implement activities directly relevant to SRP Standard 6 (Biodiversity).

- The implementation of SRP activities is an important mitigation effort, as SRP advises that farmers use water efficiently for irrigation and delay surface drainage four days after the application of fertilizer and 14 days after the application of pesticides – a practice which can sharply reduce the potential for contamination.

Such farming methods and practices can have a strong impact on the ecosystem and therefore the Bengal Floricans.

## **What are the requirements from SRP on land conversion and biodiversity?**

**Rice farming after 2009** has not been causing conversion within a (proposed) protected area, Key Biodiversity Area, Ramsar Site, primary or secondary forest, or other ecosystems such as grasslands.

**At the field level**, farmer maintains and/or enhances applicable site-specific biodiversity elements:

- In-field habitat / refuge
- Field margins
- Non-cropped area
- Plant species which host beneficial natural enemies
- Trees (replanted if harvested)

**Farming practices maintain** and/or enhance ecosystem services.



Bengal Florican (female)



# FARMER ENGAGEMENT 2024:

**In 2024, the WCS Tonle Sap teams worked with key farming groups on sustainable rice production around BFCAs.**

Depending on the geography and situation, our teams work with rice farmers who are part of Farmer Water User Groups, Agriculture Cooperatives, Producer Groups and other farming communities.

All engagements are paired with other livelihood improvement programs (cover crops, seed access) and conservation education.





# FARMER ENGAGEMENT 2024:

We work with rice farmers who farm proximate to the **Baray and Chong Doug Bengal Florican Conservation Areas (BFCA)**.

In 2024:

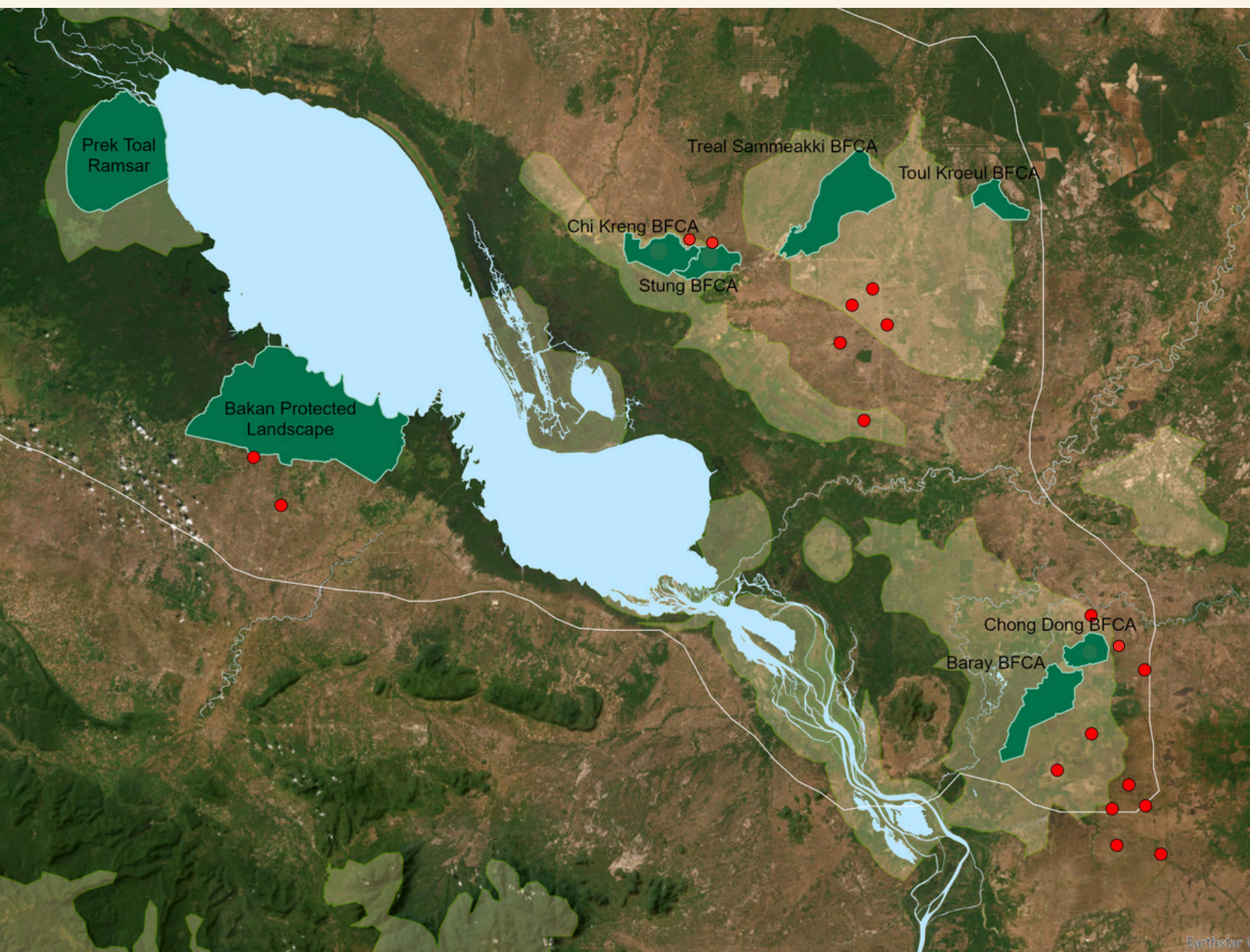
- We engaged 600+ farmers across 900+ plots.
- The farmers belonged to 12 distinct groups (Farmer Water User Groups, Agriculture Cooperatives, Producer Groups).
- The farmers cultivated *Pha Ramdoul*, *Sen Kra Ob*, *Srange Sral*, and other rice varieties.
- We trained farmers on Integrated Pest Management, cover crop cultivation, and climate-smart techniques.

See the map below of the communities/groups locations that WCS works with across the Tonle Sap Stronghold (in **red**).

We also work with rice farmers who farm proximate to the **Stoung Chikreng Bengal Florican Conservation Area (BFCA)** and **Bakan Protected Area**.

In 2024, with our local partner:

- We engaged 800+ farmers across 1,000+ plots.
- The farmers were based in 54 villages across 4 districts: Kampong Svay, Stoung, Chikreng, and Bakan.
- The farmers cultivated *Pha Ramdoul*, *Sen Kra Ob*, *Srange Sral*, and other varieties.
- We trained farmers on grassland management, cattle grazing, cover crop cultivation, and climate-smart techniques.





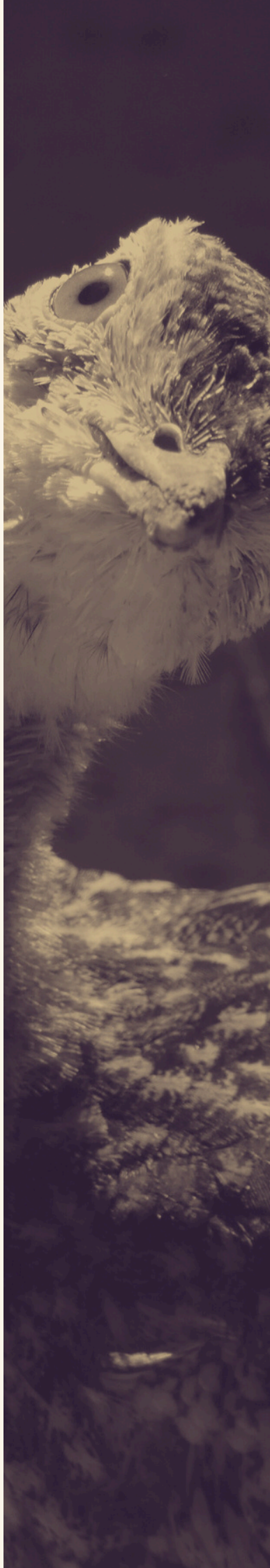
# SRP RICE & FLORICANS

The WCS Cambodia program works with 600 rice farmers who farm proximate to the Baray and Chong Doug Bengal Florican Conservation Areas (BFCA) in the Tonle Sap Stronghold.

The WCS team works directly with farming communities to implement the SRP Standard, promote biodiversity-friendly farming practices and provide conservation awareness, with the aim of improving their income and improving the landscape for Floricans.

## Farm and field activities:

- **SRP Performance Indicators (PI):** WCS tracks farmers' Biodiversity, Productivity, Profitability, Women Empowerment, and emissions.
- **Data Collection:** Data is collected with Kobo Collect, allowing for more efficient SRP Standard analysis.
- **Seed Producer Groups:** WCS supports three groups on seed production, access to registered seed, quality control, and contracts for the certified seed.
- **Climate-smart methods:** WCS supports Alternate Wetting and Drying (AWD), direct seeding and ecological engineering (hedgerows) where and when relevant.
- **Cover crops:** WCS supports sunn hemp and mung bean cultivation during the fallow season, coinciding with Florican breeding.
- **Market Linkages:** are facilitated through engagements with input companies and millers.



**WCS Project Monitoring:** In addition to the SRP Standard score, WCS also tracks six other indicators to assess the changes in the landscape, including grassland cover and income.

**Indicator 1:** Change in area of grassland.



**Indicator 2:** Population change of Bengal Florican.



**Indicator 3:** Population change of White-shouldered Ibis.



**Indicator 4:** Extension of canals, or pumping of water from the subproject area.



**Indicator 5:** SRP scores demonstrate improved livelihoods and sustainability of agriculture.



**Indicator 6:** Increase in Farmer Water User Committee (FWUC) member income





# SRP RICE & CATTLE MANAGEMENT

Implemented by its partner, **Sansom Mlup Prey (SMP)**, the program works with ~800 farmers who farm proximate to the Stoung Chikreng Bengal Florican Conservation Area and Bakan protected Area in the Tonle Sap Stronghold.

The SMP team works directly with farmers from the target four districts to improve habitat management and restoration. By developing sustainable livelihoods that protect floodplain habitats, the team aims to help communities become more resilient to environmental changes.

## Farm and field activities:

- **SRP Performance:** Farmer capacity building on SRP standard and climate-smart rice production practices.
- **Diversification:** Cattle raising as an additional household income generation activity.
- **Soil Health:** Cover crop promotion through demonstration plots to improve soil health.
- **Land Management:** Land levelling services to improve water management and productivity.
- **Market Access:** Facilitating market linkages between farmers and local rice millers through contract farming.

**In addition to monitoring the SRP Standard score, SMP tracks select indicators.**

**INDICATOR 1:** NUMBER OF HOUSEHOLDS TRAINED IN CLIMATE SMART ADAPTATION

**INDICATOR 2:** HECTARES OF RICE GROWN ACCORDING TO SRP STANDARDS IN THE TONLE SAP FLOODPLAIN



# ABOUT SRP

## How does the **scoring** work?

SRP utilizes a multi-tiered scoring system to assess the sustainability performance of rice production practices. The standard can apply to any type of rice field, anywhere in the world. This system evaluates criteria across **8 themes**, covering: environmental impact, social responsibility, and economic viability.

From this, farmers can achieve **3 different score levels** (level 1, 2, or 3). The total score against the Standard is presented on a 0-100 scale. This score is based on the total number of points a farmer has scored, divided by the maximum achievable number of points (132), multiplied by 100.

There are two claims permitted under the standard:

- **working toward sustainable rice cultivation** (score at least 33 points & meet select essential compliance thresholds)
- **sustainably cultivated rice** (score at least 90 points & meet all essential compliance thresholds)

These claims can be assessed/verified by internal, second-party or third-party assessments, depending on the score/level.

## What are the SRP **indicators**?

Next, the Performance Indicators (PIs) provide a framework for measuring and monitoring the impact of sustainable rice practices. They complement the SRP Standard by offering a practical tool to benchmark and track progress on-farm.

There are 12 performance indicators, and each indicator can be assessed at a basic, intermediate, or advanced data level.

1. **Profitability: net income from rice**
2. **Labor productivity**
3. **Productivity: grain yield**
4. **Water productivity and quality**
5. **Nutrient use efficiency: N**
6. **Nutrient use efficiency: P**
7. **Biodiversity**
8. **Greenhouse gas emissions**
9. **Food safety**
10. **Health and Safety**
11. **Child labor and youth inclusion**
12. **Women's empowerment**

## What are the themes and requirements in the SRP **Standard**?



### FARM MANAGEMENT

- Crop calendar
- Record keeping
- Training



### PRE-PLANTING

- Heavy metals
- Soil salinity
- Land conversion and biodiversity
- Invasive species
- Leveling
- Pure seed quality



### WATER USE

- Water management
- Irrigation system at community level
- Inbound water quality
- Groundwater extraction
- Drainage



### NUTRIENT MANAGEMENT

- Nutrient management (organic and/or inorganic)
- Organic fertilizer choice
- Inorganic fertilizer choice



### INTEGRATED PEST MANAGEMENT

- Weeds
- Insects
- Diseases
- Molluscs
- Rodents
- Birds



### HARVEST AND POSTHARVEST

- Timing of harvest equipment
- Drying time
- Drying technique
- Rice storage
- Rice stubble
- Rice straw



### HEALTH AND SAFETY

- Safety instructions
- Tools and equipment
- Training of pesticide applicators
- Personal protective equipment
- Washing and changing
- Applicator restrictions
- Re-entry time
- Pesticide and chemical storage
- Pesticide disposal



### LABOR RIGHTS

- Child labor
- Hazardous work
- Education
- Forced labor
- Discrimination
- Freedom of association
- Wages



# SUSTAINABLE RICE & BIODIVERSITY

To safeguard biodiversity near grasslands, wetlands, and other sensitive ecosystems while enhancing rice farming, consider incentivizing farmers to:

- Leave fields fallow on a rotational basis, particularly in areas with grassland dependent birds (especially during critical breeding seasons)
- Promote rainfed rice cultivation to reduce reliance on irrigation and conserve water resources
- Promote measures such as transplanting seedlings
- Minimize pesticide and other input use to protect beneficial insects and other wildlife

Sustainable sourcing can make a significant impact. Offering farmers incentives or premiums for adopting better practices is an effective way to promote sustainability. This is a critical element for safeguarding remaining areas of biodiversity.



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