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Maximizing Yield: A Success Story of Paddy Cultivation on 740 Sqm Land with 98 kg Output

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Paddy, known scientifically as Oryza sativa, is a widely cultivated crop that serves as a staple food for a significant portion of the global population. This crop holds immense agricultural, economic, and cultural importance, particularly in regions across Asia, where it has been cultivated for thousands of years. Paddy is primarily grown in flooded fields, marshy lands, or paddies, hence its name, and undergoes specific cultivation methods to thrive.The significance of paddy cultivation lies not only in its role as a primary food source but also in its multifaceted contributions to various aspects of life. Economically, it forms the backbone of many agricultural economies, providing livelihoods for millions of farmers worldwide.

Additionally, it plays a pivotal role in global food security, serving as a fundamental dietary staple for a large portion of the world's population.The nutritional value of paddy cannot be overstated, as it serves as the primary source of carbohydrates for billions of people worldwide. It forms the basis for numerous dishes and food products, providing essential energy and nutrients crucial for human sustenance.

Composition of rice

The composition of rice can vary based on the variety, growing conditions, and processing methods. Here's a general overview of the composition of raw, uncooked white rice and brown rice:

Nutrient	White Rice (per 100g)	Brown Rice (per 100g)
Calories	130	111
Carbohydrates	28.2g	23.5g
Protein	2.7g	2.6g
Fat	0.3g	1.8g
Fiber	0.4g	1.6g
Sugars	0.1g	0.4g
Calcium	10mg	23mg
Iron	0.4mg	0.8mg
Magnesium	12mg	43mg
Phosphorus	26mg	110mg
Potassium	35mg	86mg
Sodium	1mg	5mg
Zinc	0.2mg	1.2mg

Land preparation :

Site Selection: Choose a suitable area with access to water for irrigation and proper drainage. Paddy requires a lot of water, so it's essential to have a reliable water source nearby.

Land Clearing: Clear the land of any debris, rocks, weeds, and other unwanted vegetation. Use machinery like tractors or plows to clear and level the field.
Plowing: Plow the field to loosen the soil and turn it over. This helps in breaking up the soil, making it more suitable for root penetration and better aeration.
Harrowing: After plowing, harrowing is done to break the soil clods into smaller particles. This process helps in preparing a smooth seedbed and improves soil structure.
Leveling: Ensure the field is leveled properly to facilitate uniform water distribution during irrigation. Uneven land can result in water stagnation in some areas and insufficient water in others.
Water Management: Construct bunds or channels for water management. This includes ensuring proper irrigation canals, bunds, or dikes are in place for water retention and controlled flooding of the paddy fields.
Application of Organic Manure or Fertilizers: Depending on soil nutrient levels, apply organic manure (FYM) or fertilizers to enrich the soil. This step can be done before or after land preparation based on soil test results.
Puddling: In some regions, puddling is done by flooding the field and tilling the soil to create a mud-like consistency. This process helps in controlling weeds and improves water retention in the soil.
Preventive Measures: Take necessary measures to control pests, diseases, and weeds before planting. This could involve using appropriate pesticides or herbicides.
Timing: Timing is crucial in land preparation for paddy cultivation. It's essential to synchronize the land preparation with the onset of the rainy season or the availability of irrigation water

Nursery Preparation and Transplanting:

Using urea in a nursery setting for plant growth is a common practice due to its high nitrogen content, which is essential for the healthy growth of plants. However, it's crucial to apply urea in the right doses and under proper conditions to avoid any adverse effects on the plants. Here's a general guideline for using urea in a nursery setting for plant growth:

1. **Dose:** The appropriate dose of urea depends on various factors such as the type of plant, soil condition, and stage of growth. Typically, urea is applied at a rate of 1-2 tablespoons per gallon of water for foliar feeding or diluted in irrigation water. The concentration may vary based on specific plant needs, so it's essential to follow recommended guidelines or consult with a horticulturist.
2. **Timing:** Urea is generally applied during the active growing season. Avoid applying it during periods of dormancy or stress for the plants, as this might cause more harm than good.
3. **Application method:** Urea can be applied either as a foliar spray or as part of irrigation. When using it as a foliar spray, ensure thorough coverage of the leaves but avoid applying it during peak sunlight to prevent leaf burn. When using it for irrigation, dilute the appropriate amount in water and apply around the root zone.

Optimal Spacing and Varieties:

Spacing in paddy cultivation refers to the arrangement of rice plants within a field, determining the distance between rows and individual plants. A commonly used spacing measurement is 20 x 25 cm, indicating the distance between rows and between individual plants within a row.In the 20 x 25 cm spacing method:

Row-to-Row Spacing (20 cm): This measurement refers to the distance between adjacent rows of rice plants. A 20 cm row-to-row spacing allows adequate space for the healthy growth of rice plants while efficiently utilizing the available field area.
Plant-to-Plant Spacing (25 cm): This measurement signifies the distance between individual rice plants within a row. With a 25 cm plant-to-plant spacing, each rice plant has sufficient

room to grow, access nutrients and sunlight, reducing competition for resources and enabling proper tillering and grain formation.

List of rice cultivar used :

HMT, NP-124-8, MTU-1212, JGL-1118, MTU-1010, JGL -24423, MTU-1032, TRIVENI, NLR,JGL-3838, RDR1140, MTU 1190, RNR-15098, WGL-18833, SIDDHA SONNALU etc.

Fertilizer Dose:

Adopt a fertilization strategy with a recommended N:P:K ratio of 120:60:40 kg/ha to supply the necessary nutrients for robust plant growth and yield.

Herbicide Application:

Implement pre-emergence herbicides like Nomini Gold and Primix 80–120 ml/acre to control weeds effectively, preventing competition for nutrients and space.

Harvesting and Yield:

Timing: Harvesting of paddy usually occurs when the grains are fully matured and have reached their maximum size and weight. This timing is crucial to ensure the best quality and quantity of the yield.

1. **Methods**: Traditionally, paddy is harvested by hand using sickles or knives. However, in larger-scale farming, modern machinery like combine harvesters might be used, which can speed up the process significantly.
2. **Techniques**: Farmers typically cut the paddy stalks close to the ground and gather the cut stalks into bundles, which are then tied and transported to a processing area.
3. **Threshing**: After harvesting, the next step is threshing, where the grains are separated from the stalks. This can be done manually by beating the harvested stalks or using mechanized threshers.

Yield : 98KG / 0.06 acre