On-Farm Trial (OFT) on Performance Assessment of Rice Varieties FY 2023–24 and 2024–25

Fig. OFT at farmer's field

1. Introduction

Rice is the staple food crop of the district and plays a vital role in ensuring food and nutritional security. Farmers, however, face the challenge of non-availability of high-yielding rice varieties, limiting productivity and farm profitability. To address this, On-Farm Trials (OFTs) were conducted for two consecutive years to assess the performance of newly released rice varieties RC Maniphou-15 and RC Maniphou-16 against the check variety RC Maniphou-13 under local agro-climatic conditions.

The trial aimed to assess varietal differences in growth, yield-attributing traits, productivity, and economic returns, and to identify the most suitable variety for dissemination.

2. Objectives

i. To evaluate the performance of improved rice varieties in terms of yield and profitability.
ii. To compare their agronomic characteristics with the existing check variety.
iii. To recommend suitable rice varieties for the district based on two years' performance.

2. Materials and Methods

Three improved rice varieties **RC Maniphou-15, RC Maniphou-16 (released in 2021), and RC Maniphou-13 (released in 2016)** developed by ICAR Research Complex for NEH Region, Manipur Centre, were evaluated under farmers' field conditions using recommended agronomic practices.

Observations were recorded on important growth and yield parameters including tillers per hill, plant height, seeds per panicle, crop duration, yield, and benefit–cost (B:C) ratio. Pooled data across two years were analyzed.

Fig. Field visit to farmer's field – identification of off-type and rouging

3. Results and Discussion

3.1 Growth Parameters

Tillers per hill: All three varieties produced nearly similar tiller numbers (10–12), with little variation. RC Maniphou-16 recorded the highest number (12).

Plant height: The varieties were moderately tall (90.7–100.6 cm). RC Maniphou-15 was the shortest, while RC Maniphou-16 and RC Maniphou-13 were taller.

3.2 Yield-Attributing Characters

Seeds per panicle varied considerably, from 156.5 (RC Maniphou-15) to 201.5 (RC Maniphou-16).

This trait contributed strongly to yield differences.

Crop duration ranged from 118.5 days (RC Maniphou-15) to 133 days (RC Maniphou-16), indicating early- to medium-maturity groups.

3.3 Grain Yield

The mean yield across varieties was 55.2 q/ha. RC Maniphou-16 recorded the highest yield (58.3 q/ha), followed by RC Maniphou-13 (55.0 q/ha), while RC Maniphou-15 had the lowest (52.4 q/ha). Higher yield of RC Maniphou-16 can be attributed to more tillers and higher seed set per panicle.

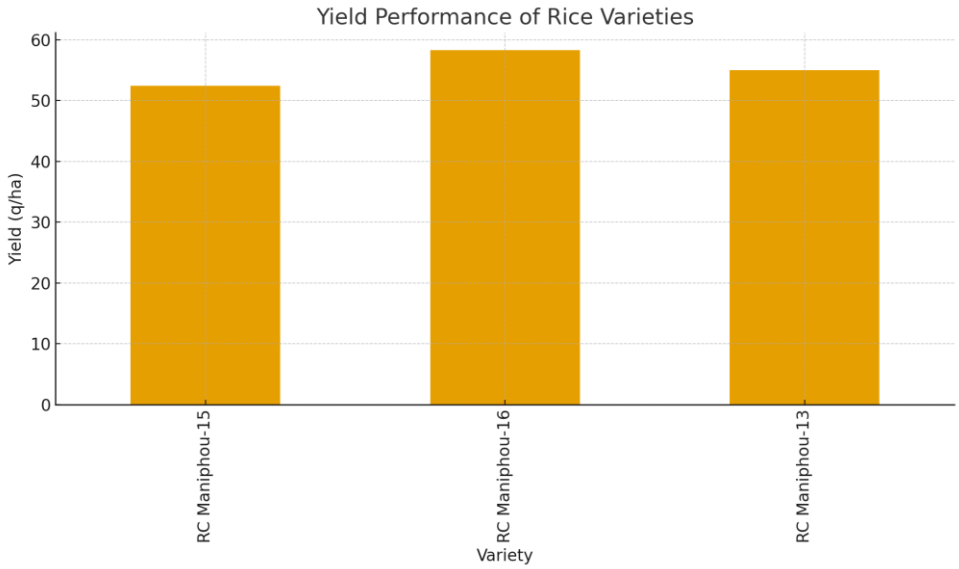

Fig. Yield performance of Rice Varieties

Fig. OFT at Farmer's field

3.4 Economic Performance

The B:C ratio ranged from 2.17 (RC Maniphou-15) to 2.54 (RC Maniphou-16). RC Maniphou-16 not only produced the highest yield but also the best economic returns, making it the most profitable choice for farmers.

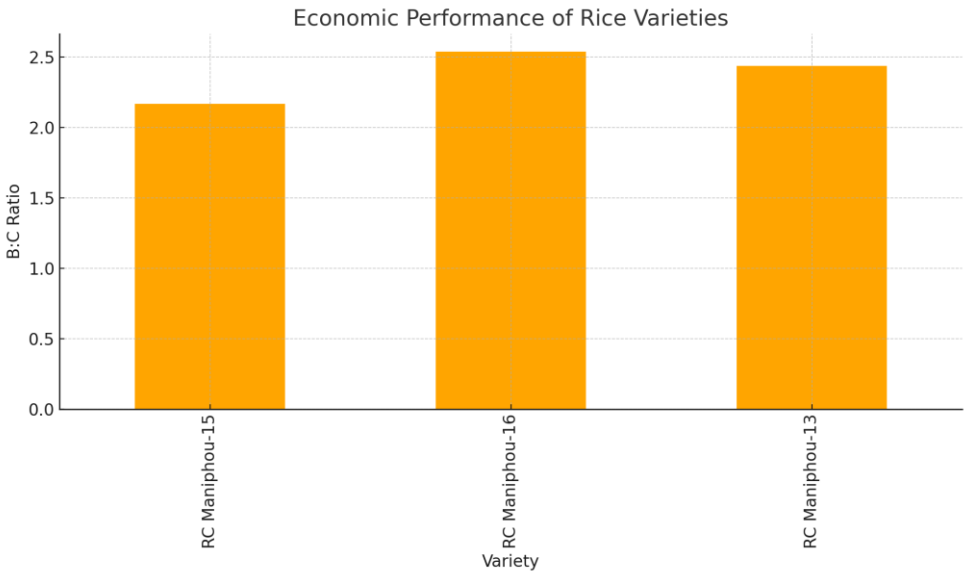

Fig. Economic performance of Rice Verities

4. Conclusion

The pooled analysis across two years clearly demonstrated the superiority of RC Maniphou-16 in terms of yield and profitability under farmers' field conditions. RC Maniphou-13 showed moderate and stable performance, while RC Maniphou-15, although early maturing, recorded comparatively lower yield and economic return.

Recommendation:

RC Maniphou-16 may be promoted as a high-yielding and profitable variety for wider cultivation. RC Maniphou-13 may serve as an alternative option for stability.- RC Maniphou-15 may be suitable for situations requiring early maturity, such as areas prone to terminal drought or where short-duration crops are needed.