MARKER ASSISTED SELECTION

RICE VARIETIES

- DRR Dhan 34 (IET – 19046)
- DRR Dhan 51 (IET – 25484)
- DRR Dhan 53 (IET – 27294)
- DRR Dhan 59 (IET – 27280)
- DRR Dhan 62 (IET – 28804)
- DRR Dhan 83 (IET – 32045)
- DRR Dhan 89 (IET – 32064)
- DRR Dhan 91 (IET – 32061)

DRR Dhan 34

IET 19046 | IMPROVED SAMBA MAHSURI

Low GI, BLB Resistant, Fine Grain Rice Variety



LOW GLYCAEMIC INDEX

HIGH RESISTANCE TO BACTERIAL LEAF BLIGHT

Improved Samba Mahsuri, a MAS variety developed by introgression of 3 major bacterial leaf blight resistance genes Xa21, xa13 and xa5 and exhibited high level of resistance to BLB and is widely cultivated across the country for its excellent grain quality

3 major bacterial leaf blight resistance genes: **Xa21, xa13 and xa5**

AT-A-GLANCE

- Ecology: Irrigated & Shallow Lowlands
- Grain Type: Medium Slender
- Duration: 135 days
- Yield: 5.0 t/ha

FINE GRAIN QUALITY



HRR: 65% | ASV: 4.5 | AC: 24.8%

PEDIGREE

Samba Mahsuri*7/SS1113

RECOMMENDED STATES

Andhra Pradesh, Chhattisgarh, Orissa, Jharkhand, Bihar, Gujarat and Maharashtra

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DRR Dhan 51

IET-25484



Variety type: A high yielding short bold grain variety resistant to blast

Description: DRR Dhan 51 is a blast resistant, high yielding, early maturity, short bold grain variety developed through the deployment of Marker assisted selection (MAS).

Key highlights: It possesses excellent grain and cooking quality features on par with Swarna in terms of Hulling percentage (79.5), Head rice recovery (60.1), Kerel length (5.1), Kerel width (2.16), L/B ratio (2.44), Alkali spreading value (4.0) and Amylose content (26.7).

AGRONOMIC AND IDENTITY

Pedigree:	Swarna*2/C101A51
Ecology:	Irrigated
Grain type:	Short Bold
Duration:	135 - 140 Days
Yield:	5.9 t/ha
Plant height:	111-117 cm
1000 grain weight:	21.5 g
L/B ratio:	2.44
Head rice recovery:	60.1%
ASV:	4
Amylose content:	26.7%

GRAIN AND COOKING QUALITY



HUSKED GRAIN



MILLED GRAIN

Hulling percentage	79.5
Head rice recovery	60.1
Kernel length	5.1
Kernel breadth	2.16
L/B ratio	2.44
Alkali spreading value	4.0
Amylose content	26.7

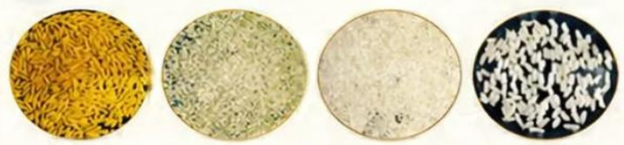
SALIENT FEATURES

This variety is of early duration with high yield under irrigated conditions and good grain quality. It can be grown even with low N conditions.

RECOMMENDED STATES

Uttar Pradesh, Gujarat, Telangana and Chhattisgarh.

RICE PRODUCTS



Notification No:
S.O. 1379 (E) | 27/03/2018

Protection of Plant Varieties and Farmers' Rights Authority Number: 2022/0015

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DRR Dhan 53

IET 27294

Low GI, BLB resistant, Fine-grain rice variety



DRR Dhan 53 was developed by introgressing 4 major BB resistance genes, **Xa21+xa13+xa5+Xa38** through marker assisted back cross breeding and is highly resistant to bacterial blight.

It is **Semi-dwarf and non-lodging** with **complete panicle exertion** and has significant yield advantage **(15-30%)** over Samba Mahsuri under BLB incidence.

HIGHLY RESISTANT TO BACTERIAL BLIGHT | **LOW GI BETTER HEALTH CHOICE**

15-30% YIELD ADVANTAGE OVER SAMBA MAHSURI UNDER BLB INCIDENCE

VARIETY AT A GLANCE

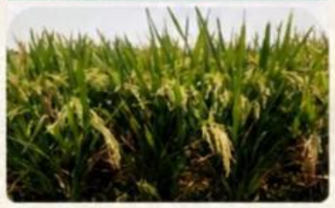
Pedigree	Improved Samba Mahsuri*3/PAU 3554
Ecology	Irrigated & Rainfed Lowland
Grain type	Medium slender
Duration	130-135 Days
Yield	5.5 to 6.0 t/ha
Plant height	85 cm
1000 grain weight	19.9 g
L/B ratio	2.96

HIGHLY RESISTANT TO BACTERIAL BLIGHT



Introgressed with 4 major BB resistance genes **Xa21+xa13+xa5+Xa38** through marker assisted back cross breeding providing highly resistant to bacterial blight.

COMPLETE PANICLE EXERTION



FINE GRAINED



GRAIN AND COOKING QUALITY

Head rice recovery: 59.7%	59.7%
Alkali spreading value: 5	5
Amylose content: 22.2%	22.2%
Gel consistency: 22 mm	22 mm



SALIENT FEATURES

- Highly Resistant to bacterial blight.

RECOMMENDED STATES

Andhra Pradesh, Telangana, Chhattisgarh, Bihar, Karnataka, Tamil Nadu, Jharkhand, Odisha, Gujarat and Maharashtra.

Notification No:
S.O. 500 (E) | 29/01/2021

Protection of Plant Varieties and Farmers' Rights Authority Number:
2022/0018

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DRR Dhan 59

IET-27280

A high yielding fine grain variety **resistant to bacterial blight**

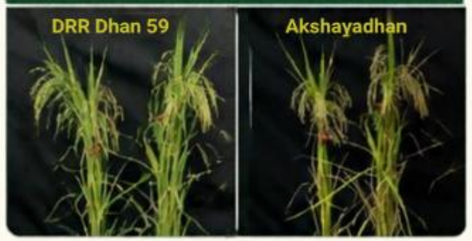


RESISTANT TO BACTERIAL BLIGHT | **HIGH YIELD 5.0 - 5.5 T/HA** | **LONGBOLD PREMIUM GRAIN**

DESCRIPTION

DRR Dhan 59 an improved, bacterial blight resistant, high yielding, longbold grain type variety possessing premium grain and cooking quality, developed through the deployment of **Marker assisted** selection. It can replace long **bold** grain varieties like Akshayadhan, Sadabahar and other long bold varieties in those gazetted areas. The new variety can also be cultivated across the country in the bacterial blight affected areas.

COMPARISON: DRR DHAN 59 VS AKSHAYADHAN



HUSKED GRAIN



MILLED RICE



VARIETY AT A GLANCE

- **Pedigree** Akshayadhan*2/FBR 1-15
- **Ecology** Irrigated
- **Grain type** Long Bold
- **Duration** 130-135 Days
- **Yield** 5.0 - 5.5 t/ha
- **Notification No** S.O. 8 (E).| 24/12/2021
- **Protection of Plant Varieties and Farmers' Rights Authority No:** 2022/0017
- **Plant height** 113 cm
- **1000 grain weight** 24.0 g

GRAIN AND COOKING QUALITY

Hulling:	80.8%
Head rice recovery:	56.2%
Kernel length:	6.45 mm
Kernel width:	2.30 mm
L/B ratio:	2.8
Alkai spreading value:	4.0
Amylose content:	26.57
Gel consistency:	24 mm



SALIENT FEATURES

Similar to rice varieties of medium and late duration, which are cultivated in irrigated areas.

REPLACEMENT / USE

It can replace long bold grain varieties like Akshayadhan, Sadabahar and other long bold varieties in those gazetted areas. The new variety can also be cultivated across the country in the bacterial blight affected areas.

RECOMMENDED STATES



Telangana, Tamil Nadu, Jharkhand, Andhra Pradesh.

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DRR DHAN 62

IET28804 BLB & Blast Resistant Fine Grain Rice Variety



VARIETY IDENTITY

DRR Dhan 62 is a MAS derived, blast and bacterial blight resistant high-yielding, fine-grain rice variety having 3 major bacterial blight resistance genes, Xa21+xa13+xa5 and 2 major blast resistance genes Pi-2+Pi54. It also showed good level of resistance to neck blast, brown spot and sheath rot.

BLB RESISTANCE

3 major bacterial blight resistance genes

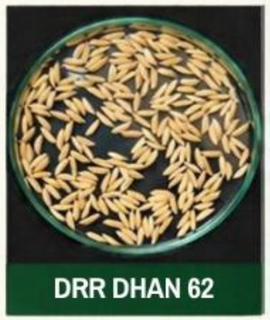
Xa21+xa13+xa5

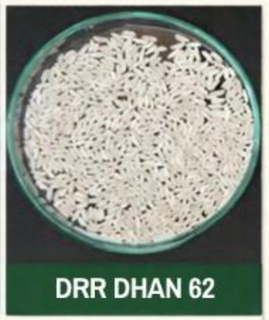
2 major blast resistance genes

Pi-2+Pi54

Xa21+xa13+xa5

Good level of resistance to neck blast, brown spot and sheath rot.


DRR DHAN 62


DRR DHAN 62

- Pedigree: Improved Samba Mahsuri'2//ISM/C101A51//ISM/Tetep
- Ecology: Irrigated
- Grain type: Medium Slender
- Duration: 135-140 days
- Yield: 5.5-6.0 t/ha under 40 kg P_2O_5
- Plant height: 86-90 cm
- 1000 grain weight: 20.0 g
- L/B ratio: 2.88
- Notification No: S.O. 8 (E) | 24/12/2021
- PPV and FRA Number: 2022/0020

GRAIN AND COOKING QUALITY

HRR:	L/B ratio:	ASV:	AC:	GC:
61.2%	2.88	4.0	26.51%	45 mm

RECOMMENDED STATES



Andhra Pradesh, Telangana, Tamil Nadu, Karnataka, Odisha, Chhattisgarh, Jharkhand, Bihar, Gujarat and Maharashtra.

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DRR Dhan 83

IET 32045 | MAS derived variety in the background of Krishna Hamsa with Enhanced Blast and Bacterial Leaf blight Resistance and Drought tolerance



- ENHANCED BLAST RESISTANCE
- BACTERIAL LEAF BLIGHT RESISTANCE
- DROUGHT TOLERANCE

DESCRIPTION

DRR Dhan 83 is developed through multi-parent inter-crossing with introgression of xa5+Xa21 for bacterial blight and Pi9 for blast resistance and qDTY12.1+qDTY3.1 for reproductive stage drought tolerance. It also possesses favourable alleles of Pi1+Pi20+Pi38 for blast resistance; AG3 for anaerobic germination and qDTY2.2 for drought tolerance.

TARGET TRAITS

- Bacterial blight: *xa5+Xa21*
- Blast: *Pi9, Pi1+Pi20+Pi38*
- Reproductive-stage drought tolerance: *qDTY12.1+qDTY3.1*
- Anaerobic germination: *AG3*
- Drought tolerance: *qDTY2.2*

AT-A-GLANCE

Ecology:	Grain Type:	Duration:	Yield:
Irrigated Early Transplanted	Long Slender	110–115 days	4.679 t/ha

QUALITY

HRR:	AC:	GC:	ASV:
56.8%	28.74%	45 mm	5.0

RESISTANCE AND TOLERANCE

Resistant to Blast, Neck blast and Bacterial leaf blight; Tolerance to drought.

GRAIN QUALITY: THREE STAGE



BREEDING / TRAIT VISUAL



PEDIGREE

Improved Samba Mahsuri*2 / Abhaya / Aganni

RECOMMENDED STATES

Tripura and Assam, Tamil Nadu, Kerala, Karnataka, Puducherry, Telangana and Andhra Pradesh.

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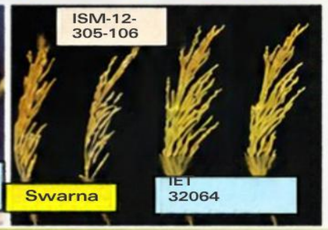
DRR Dhan 89 (Super Swarna)

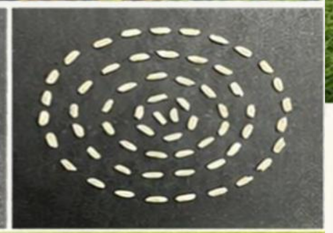
IET 32064 | High Yielding Irrigated Late (NIL) Variety











RESISTANT TO BACTERIAL BLIGHT AND LEAF BLAST

HIGH YIELD POTENTIAL WITH EXCELLENT GRAIN QUALITY

OVERVIEW

DRR Dhan 89, derived from the cross, is a high-yielding, bacterial blight, blast-resistant, medium slender-grain type rice variety that possesses the major bacterial blight resistance gene, Xa21, and the genes associated with blast and yield, including Pi54 and OsSPL14. It largely mirrors the superior agronomic base of Swarna, featuring a semi-dwarf, non-lodging plant type with strong culms and dark-green, highly vigorous, erect leaves that contribute to excellent biomass. Its yield potential is underpinned by long, completely exerted deflexed panicles that bear a high number of grains (350-400) with good cooking and eating qualities. It is suitable for cultivation under Irrigated Transplanted conditions in the Eastern states.

TARGET GENES

- **Bacterial blight resistance: Xa21**
- **Blast resistance: Pi54**
- **Yield-associated gene: OsSPL14**

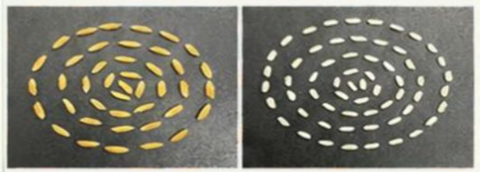
PLANT AND PANICLE TRAITS

Semi-dwarf, non-lodging plant type; strong culms; dark-green, highly vigorous, erect leaves; excellent biomass; long, completely exerted deflexed panicles; 350-400 grains per panicle.

AT-A-GLANCE

- Ecology:Irrigated Late Duration
- Grain Type:Medium Slender
- Duration:135-140 days
- Yield:5.354 t/ha

GRAIN AND COOKING QUALITY



QUALITY: HRR-60.3%; AC-24.58%; GC-22 MM; ASV-7.0

SALIENT FEATURES

Resistant to Leaf Blast, Bacterial Leaf Blight and Moderately Resistant to Leaf Folder, Stem Borer.

PEDIGREE

Swarna *2 / Improved Samba Mahsuri

RECOMMENDED STATES

Odisha, West Bengal, Jharkhand, Bihar, Uttar Pradesh (Zone III)

ICAR

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DRR Dhan 91

IET 32061 | High Yielding Irrigated Late (NIL) Variety



SUBMERGENCE TOLERANCE

Survives and recovers in waterlogged conditions, ensuring reliable yield under submerged stress.

DESCRIPTION

DRR Dhan 91, derived from the cross, is a high-yielding, bacterial blight, blast-resistant, and submergence-tolerant medium slender-grain type rice variety having the major bacterial blight resistance genes, **Xa21+xa13+xa5**, and the genes associated with blast and submergence are **Pi54 and sub1**. It has acceptable grain and cooking quality. This variety is a replacement for medium slender-grained varieties like Improved Samba Mahsuri in Bacterial blight, blast endemic areas, and submerged stress condition regions.

RESISTANT. TOLERANT. RELIABLE.

SALIENT FEATURES:
Resistant to Bacterial leaf blight and Blast; Tolerance to Submergence, Plant Hoppers.

TARGET GENES:
Bacterial blight resistance: **Xa21+xa13+xa5** | Blast: **Pi54** | Submergence tolerance: **sub1**

REPLACEMENT VARIETY

A superior replacement for medium slender-grained varieties like Improved Samba Mahsuri in Bacterial blight, blast endemic areas, and submerged stress condition regions.

AT-A-GLANCE

- **Ecology:** Irrigated Medium
- **Grain Type:** Medium Slender
- **Duration:** 135-140 days
- **Yield:** 4.982 t/ha

GRAIN TYPE: MEDIUM SLENDER



QUALITY: GRAIN AND COOKING

HRR: 54.5% | **AC:** 23.81% | **GC:** 57 MM | **ASV:** 5.0

PEDIGREE

Improved Samba Mahsuri*2//Tetep/Swarna sub-1

RECOMMENDED STATES

Odisha, Jharkhand, Bihar (Zone III); Gujarat, Maharashtra (Zone VI); Tamil Nadu, Andhra Pradesh, Telangana, Karnataka (Zone VII)

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