Salt-tolerant varieties

- Can withstand salinity stress for prolonged periods
- Can produce 0.5-1.5 t/ha more yield than sensitive varieties
- Have potential to improve and sustain productivity in salt-affected areas

Released salt-tolerant varieties under the IRRI/STRASA project

Name	Country released/ year	Designation/ parentage	Days to maturity	Plant height	Grain type
CSR36 (Naina)	India, 2005	CSR13/Panvel 2//IR36	135	110	Long slender
BRRI dhan 47	Bangladesh, 2007	IR63307-4B-4-3	145	100	Medium bold
BINA dhan 8	Bangladesh, 2010	IR66946-3R-149-1-1	145	100	Bold
BRRI dhan 53	Bangladesh, 2010	BR5778-156-1-3-HR14	122	106	Medium slender
BRRI dhan 54	Bangladesh 2010	BR5999-82-3-2-HR1	132	115	Medium slender
NDRK 5088 (Narendra Usar Dhan 2008)	UP, India 2010	IR262-43-8-1/ TCCP 266-249-b-b-3)	120-125	114	Long bold
BRRI dhan 55	Bangladesh 2011	IR73678-6-9-B	145	100	Long slender
CSR 43	UP, India 2011	CSR-89IR-8	110	95	Short bold
CR Dhan 405 (Luna Sankhi)	Odisha, India 2012	IR72046-B-R-3-3-3-1	100-110	100-105	Medium bold
CR Dhan 406 (Luna Barial)	Odisha, India 2012	Jaya/ Lunishree	150-155	110-115	Medium bold
BINA dhan 10	Bangladesh 2012	IR64197-3B-14-2	121-125	100-110	Medium bold
BRRI dhan 61	Bangladesh 2013	BR7105-4R-2	145	96	Medium slender

Salt-tolerant varieties BINA dhan 8 (right) and CSR 36 (left) planted in the field.

STRASA's mission is to reduce poverty and hunger and increase food and income security of resource-poor farm families and rice consumers. The challenge is to do it in environments affected by drought, flooding, soil with high salinity and toxicity, and cold temperatures.

Stress-Tolerant Rice for Africa and South Asia

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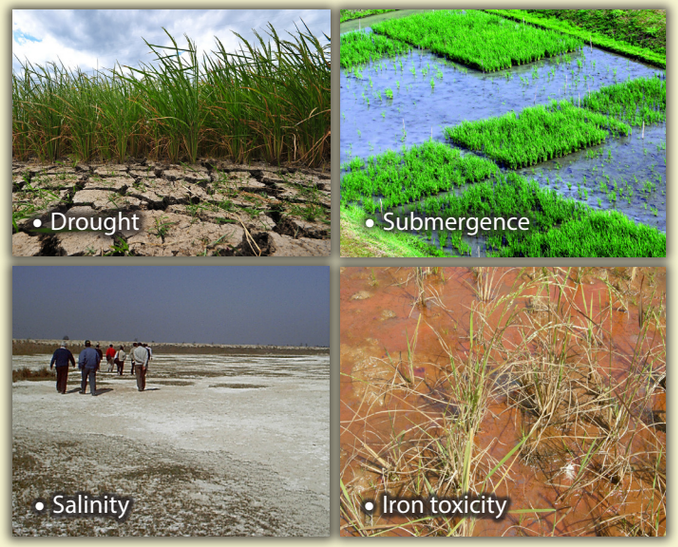
STRASA

The Stress-Tolerant Rice for Africa and South Asia Project: producing more with less to increase productivity and improve lives

IRRI

BILL & MELINDA GATES foundation

The Stress-Tolerant Rice for Africa and South Asia (STRASA) project started in 2007. It aims to develop and deliver rice varieties tolerant of abiotic stresses, such as:



STRASA's mission in sub-Saharan Africa and South Asia is to:

1. reduce poverty and hunger, and
2. increase the food and income security of resource-poor farm families and rice consumers.

STRASA Phase I

In Phase I, STRASA aimed to increase rice yield by 50% in farmers' fields affected by abiotic stresses. It also aimed to give the farmers access to improved varieties and knowledge on good management practices suitable for new rice varieties.

STRASA Phase II

In Phase II, STRASA aimed to develop stress-tolerant rice varieties and disseminate those to at least 5 million farmers in South Asia and sub-Saharan Africa.

STRASA is now on its Phase III!

The goal: STRASA products multiplied and upscaled in participating countries in South Asia and sub-Saharan Africa

What's in Phase III?

Drought-tolerant varieties

- Yield advantage of 0.5 t/ha under moderate drought
- Yield advantage of 0.8 to 1.0 t/ha under severe drought
- Maintains the same high-yielding ability under irrigated (control) conditions
- Tolerant of blast and brown spot

Released drought-tolerant varieties under the IRRI/STRASA project

Name	Country, year of release, condition	Designation	Days to maturity	Plant height (cm)	Grain type
Sahbhagi dhan	India 2010 (rainfed lowland)	IR74371-70-1-1	110	104	Medium bold
BRRI dhan56	Bangladesh 2011 (rainfed lowland)	IR74371-70-1-1	110	108	Medium slender
Sukha dhan1	Nepal 2012 (rainfed lowland)	IR74371-46-1-1	110	101	Medium bold
Sukha dhan2	Nepal 2012 (rainfed lowland)	IR74371-54-1-1	110	104	Medium bold
Sukha dhan3	Nepal 2012 (rainfed lowland)	IR74371-70-1-1	110	108	Medium slender

Field demonstrations for Sahbhagi dhan (left) and Sukha dhan (right) drought-tolerant varieties.

Submergence-tolerant varieties

- Survive 2 weeks of complete inundation
- Produce 1-3 t/ha more than intolerant varieties when affected by short-term submergence
- Retain all desirable characteristics of parent variety + higher survival and yield in case of flooding

Released submergence-tolerant varieties under the IRRI/STRASA project (with the *SUB1* gene)

Name	Country released/year	Background variety	Days to flowering	Plant height (cm)	Grain type
IR05F102	India, 2009, as Swarna-Sub1; Bangladesh, 2010 as BRRI dhan 51; Nepal, 2012 as Swarna-Sub1	Swarna	105	85	Short bold
IR07F290	Bangladesh as BRRI dhan 52, 2011	BR11	100	130	Medium bold
IR07F101	Nepal and India as Samba Mahsuri-Sub1 in 2012 and 2011, respectively	Samba Mahsuri (BPT5204)	95-105	80-85	Medium bold
NDR 9830144 (Narendra Mayank)	India, 2009	IR68828-24-NDR-1-1-1-1	115-120	110	Long fine
NDR 9830135 (Narendra Jalpushpa)	India, 2009	IR68850-71-NDR-1-1-1-1	120-125	120	Long bold
NDR 9830132 (Narendra Naraini)	India, 2009	IR68815-1-NDR-1-1-1-1	120-125	120	Long bold
IR09F436	BINA dhan 11 in Bangladesh and India, 2013	Ciherang-Sub1	120	118	Long slender
IR07F291	India, 2013	CR1009-Sub1	145	125	Short bold
IR07F102	India and Bangladesh, for release in 2014	IR64-Sub1	85	95	Medium bold

A submerged field planted with Swarna-Sub1 in eastern Uttar Pradesh early on in the planting season (left), and the same field a few months later (right).