

Table S1: Agroclimatic condition of the area.

Month	Solar Radiation (MJ m ⁻² d ⁻¹)	Min. Temperature (°C)	Max. Temperature (°C)	Relative Humidity (%)
<i>2019 Wet Season</i>				
June	21.3	25.0	34.5	81.0
July	17.6	24.4	32.5	84.0
August	13.5	24.1	31.4	86.0
September	15.1	23.7	31.2	89.0
October	19.3	23.3	33.6	82.0
<i>2020 Dry Season</i>				
December (2019)	16.4	22.6	31.9	74.0
January	17.5	22.1	31.0	75.0
February	20.7	20.3	30.4	75.0
March	23.8	22.7	33.0	74.0
April	24.7	24.0	34.9	71.0
<i>2020 Wet Season</i>				
June	22.5	24.6	35.0	78.0
July	21.9	24.6	34.1	81.0
August	16.9	23.8	32.3	87.0
September	16.4	23.9	33.1	87.0
October	14.7	23.8	32.2	85.0
<i>2021 Dry Season</i>				
December (2020)	13.2	23.2	31.6	78.0
January	13.7	22.1	30.6	70.0
February	18.3	22.9	30.4	74.0
March	23.0	24.0	33.0	74.0
April	20.0	24.1	33.9	68.0

Table S2: Combined ANOVA for grain yield of all entries under different water treatments in wet and dry seasons from 2019 to 2021.

	Wet Season						Dry Season					
	2019			2020			2020			2021		
	Aromatic	Pigmented	Glutinous	Aromatic	Pigmented	Glutinous	Aromatic	Pigmented	Glutinous	Aromatic	Pigmented	Glutinous
Genotype (G)	**	**	**	**	**	**	**	**	**	**	**	**
Treatment (T)	ns	*	ns	**	**	**	**	**	**	**	**	**
G x T	ns	ns	ns	**	*	*	*	**	**	*	**	*

*, **, and ns represent significant, highly significant, and not significant, respectively.

Table S3. Estimation of some genetic parameters for grain yield in different water treatments.

Water Treatments	CV (%)	PCV (%)	GCV (%)	h^2_b (%)
19WS Irrigated	17.04	33.44	28.76	73.99
19WS Rainfed	14.24	29.06	25.33	75.99
20WS Irrigated	14.65	23.60	18.51	61.49
20WS Rainfed	16.54	24.23	17.71	53.46
20WS Rainfed-late	25.39	31.82	19.19	36.38
20DS Irrigated	8.64	20.78	18.90	82.72
20DS Mild drought	29.18	43.07	31.73	54.26
20DS Severe drought	36.18	47.15	30.15	40.88
21DS Irrigated	11.69	19.76	15.93	64.98
21DS Mild drought	23.81	34.98	25.58	53.47

CV—coefficient of variation, PCV—phenotypic coefficient of variation, GCV—genotypic coefficient of variation, h^2_b —broad-sense heritability

Table S4: Hydrological parameters, mean grain yield and grain yield reduction of specialty rice and drought-tolerant check under rainfed and controlled drought conditions. Arrow (↑) indicates increase.

Water Treatments	Soil Moisture Content (%)	Water Table Depth (cm)	Cumulative Rain-fall (mm)	Daily Rainfall (mm)	Mean Grain Yield (t ha ⁻¹)	Grain Yield Range (min–max)	Grain Yield Reduction (%)
19WS Rainfed	14.5–46.0	3.3–62.3	1125.9	10.1	4.91	1.52–6.85	↑12.3
20WS Rainfed	13.7–39.0	1.2–66.8	2822.6	27.1	4.65	3.12–6.78	8.1
20WS Rainfed-late	13.7–38.4	3.8–72.8	2806.4	27.0	2.53	1.45–3.66	50.0
20DS Mild drought	15.4–32.9	0.7–63.3	957.9	8.6	2.32	0.89–4.21	66.8
20DS Severe drought	13.9–31.5	2.5–89.0	1111.9	9.4	1.53	0.00–2.26	78.0
21DS Mild drought	8.0–38.5	28.7–79.2	16.1	0.15	1.71	0.87–2.60	75.0

Table S5: Antioxidant activity (%w/w) of pigmented rice under rainfed condition.

Genotypes	Antioxidant activity (%w/w)
Black rice	4.66
CLRice-2	3.84
Red rice	2.05
Calatrava	4.76
CLRice-3	4.88
Pinilisa	5.70

Table S6: Cost and return per hectare of drought tolerant check NSIC Rc192 under rainfed condition of 2019 WS.

Activities	Needed Inputs			Unit Cost (Php)	Total Cost (Php)	Total Cost (USD)
	Qty	Unit	Item Specification			
INPUTS						
Land Preparation	1	ha	From 1 st plowing to final levelling	6000.00	6000.00	121.75
Cleaning and repair of dikes	1	gallon	Round-up	1696.00	1696.00	34.42
	5	Li	Gasoline	52.00	260.00	5.28
	1	Li	Oil, 2T	143.10	143.10	2.90
	1	piece	Tansi, for grasscutter	169.00	169.00	3.43
Sowing	2	bag	Inbred seeds (Certified)	1166.00	2332.00	47.32
Seedling pulling and transplanting	1	ha	Labor contract	8000.00	8000.00	162.34
	1	bundle	Cogon strip	180.00	180.00	3.65
Snacks	1	ha	300 worth of snacks per ha	300.00	300.00	6.09
Basal fertilizer application	4.29	bag	14-14-14	1169.18	5015.78	101.78
Molluscicide application	1	Li	Bayluscide	1034.56	1034.56	20.99
Herbicide application	3	bottle	Nominee (100 mL)	707.20	2121.60	43.05
	2	bottle	Weedkill 2,4-D (1 L)	320.65	641.30	13.01
Top dress	2.61	bag	46-0-0	922.20	2406.94	48.84
Insecticide application	1	bottle	Brodan 31.5 EC (1 L)	551.20	551.20	11.19
Fungicide application	1	bottle	Armure (250 mL)	636.00	636.00	12.91
Harvesting (8% of harvest)	506.4	kg	Palay			
Laborer (10% of harvest)	633	kg	Palay			
Grain yield	6330	kg	Palay			
Net grain yield	5191	kg	Palay			
Hauling of harvest	126.65	cavan	Palay	20.00	2,533.01	51.40
Drying of <i>palay</i>	126.65	cavan	Palay	5.00	633.25	12.85
Snacks and meal for drying	2	MD	2 snacks and 1 meal (lunch)	80.00	160.00	3.25
Milling of <i>palay</i>	2696	kg	Milled rice	4.00	10,783.99	218.83
Total					45,597.74	925.28
OUTPUTS/GROSS INCOME	2696	kg	Milled rice	45.00	121,319.89	2,461.85
NET INCOME					75,722.15	1,536.57

Table S7: Cost and return per hectare of aromatic NSIC Rc344 under rainfed condition of 2019 WS.

Activities	Needed Inputs			Unit Cost (Php)	Total Cost (Php)	Total Cost (USD)
	Qty	Unit	Item Specification			
INPUTS						
Land Preparation	1	ha	From 1 st plowing to final levelling	6000.00	6000.00	121.75
Cleaning and repair of dikes	1	gallon	Round-up	1696.00	1696.00	34.42
	5	Li	Gasoline	52.00	260.00	5.28
	1	Li	Oil, 2T	143.10	143.10	2.90
	1	piece	Tansi, for grasscutter	169.00	169.00	3.43
Sowing	2	bag	Inbred seeds (Certified)	1166.00	2332.00	47.32
Seedling pulling and transplanting	1	ha	Labor contract	8,000.00	8,000.00	162.34
	1	bundle	Cogon strip	180.00	180.00	3.65
Snacks	1	ha	300 worth of snacks per ha	300.00	300.00	6.09
Basal fertilizer application	4.29	bag	14-14-14	1169.18	5015.78	101.78
Molluscicide application	1	Li	Bayluscide	1034.56	1034.56	20.99
Herbicide application	3	bottle	Nominee (100 mL)	707.20	2121.60	43.05
	2	bottle	Weedkill 2,4-D (1 L)	320.65	641.30	13.01
Top dress	2.61	bag	46-0-0	922.20	2406.94	48.84
Insecticide application	1	bottle	Brodan 31.5 EC (1 L)	551.20	551.20	11.19
Fungicide application	1	bottle	Armure (250 mL)	636.00	636.00	12.91
Harvesting (8% of harvest)	511.2	kg	Palay			
Laborer (10% of harvest)	639	kg	Palay			
Grain yield	6390	kg	Palay			
Net grain yield	5240	kg	Palay			
Hauling of harvest	127.85	cavan	Palay	20.00	2557.02	51.89
Drying of <i>palay</i>	127.85	cavan	Palay	5.00	639.26	12.97
Snacks and meal for drying	2	MD	2 snacks and 1 meal (lunch)	80.00	160.00	3.25
Milling of <i>palay</i>	2777	kg	Milled rice	4.00	11,106.28	225.37
Total					45,950.04	932.43
OUTPUTS/GROSS INCOME	2777	kg	Milled rice	72.00	199,913.04	4,056.68
NET INCOME					153,963.00	3,124.25

Table S8: Cost and return per hectare of drought tolerant check NSIC Rc192 under rainfed condition of 2020 WS.

under rainfed condition of 2020 WS.				UNIT COST (Php)	TOTAL COST (Php)	TOTAL COST (USD)
ACTIVITIES	NEEDED INPUTS					
	QTY	UNIT	ITEM SPECIFICATION			
INPUTS						
Land Preparation	1	ha	From 1 st plowing to final levelling	6000.00	6000.00	121.75
Cleaning and repair of dikes	1	gallon	Round-up	1696.00	1696.00	34.42
	5	Li	Gasoline	52.00	260.00	5.28
	1	Li	Oil, 2T	143.10	143.10	2.90
	1	piece	Tansi, for grasscutter	169.00	169.00	3.43
Sowing	2	bag	Inbred seeds (Certified)	1166.00	2332.00	47.32
Seedling pulling and transplanting	1	ha	Labor contract	8000.00	8000.00	162.34
	1	bundle	Cogon strip	180.00	180.00	3.65
Snacks	1	ha	300 worth of snacks per ha	300.00	300.00	6.09
Basal fertilizer application	4.29	bag	14-14-14	1169.18	5015.78	101.78
Molluscicide application	1	Li	Bayluscide	1034.56	1034.56	20.99
Herbicide application	3	bottle	Nominee (100 mL)	707.20	2121.60	43.05
	2	bottle	Weedkill 2,4-D (1 L)	320.65	641.30	13.01
Top dress	2.61	bag	46-0-0	922.20	2406.94	48.84
Insecticide application	1	bottle	Brodan 31.5 EC (1 L)	551.20	551.20	11.19
Fungicide application	1	bottle	Armure (250 mL)	636.00	636.00	12.91
Harvesting (8% of harvest)	387.2	kg	Palay			
Laborer (10% of harvest)	484	kg	Palay			
Grain yield	4840	kg	Palay			
Net grain yield	3969	kg	Palay			
Hauling of harvest	96.84	cavan	Palay	20.00	2533.01	51.40
Drying of <i>palay</i>	96.84	cavan	Palay	5.00	633.25	12.85
Snacks and meal for drying	2	MD	2 snacks and 1 meal (lunch)	80.00	160.00	3.25
Milling of <i>palay</i>	2158	kg	Milled rice	4.00	10,783.99	218.83
Total					45,597.74	925.28
OUTPUTS/GROSS INCOME	2158	kg	Milled rice	45.00	121,319.89	2,461.85
NET INCOME					75,722.15	1,536.57

Table S9: Cost and return per hectare of aromatic NSIC Rc344 under rainfed condition of 2020 WS.

ACTIVITIES	NEEDED INPUTS			UNIT COST (Php)	TOTAL COST (Php)	TOTAL COST (USD)
	QTY	UNIT	ITEM SPECIFICATION			
INPUTS						
Land Preparation	1	ha	From 1 st plowing to final levelling	6000.00	6000.00	121.75
Cleaning and repair of dikes	1	gallon	Round-up	1696.00	1696.00	34.42
	5	Li	Gasoline	52.00	260.00	5.28
	1	Li	Oil, 2T	143.10	143.10	2.90
	1	piece	Tansi, for grasscutter	169.00	169.00	3.43
Sowing	2	bag	Inbred seeds (Certified)	1166.00	2332.00	47.32
Seedling pulling and transplanting	1	ha	Labor contract	8000.00	8000.00	162.34
Snacks	1	bundle	Cogon strip	180.00	180.00	3.65
	1	ha	300 worth of snacks per ha	300.00	300.00	6.09
Basal fertilizer application	4.29	bag	14-14-14	1169.18	5015.78	101.78
Molluscicide application	1	Li	Bayluscide	1034.56	1034.56	20.99
Herbicide application	3	bottle	Nominee (100 mL)	707.20	2121.60	43.05
	2	bottle	Weedkill 2,4-D (1 L)	320.65	641.30	13.01
Top dress	2.61	bag	46-0-0	922.20	2406.94	48.84
Insecticide application	1	bottle	Brodan 31.5 EC (1 L)	551.20	551.20	11.19
Fungicide application	1	bottle	Armure (250 mL)	636.00	636.00	12.91
Harvesting (8% of harvest)	401.6	kg	Palay			
Laborer (10% of harvest)	502	kg	Palay			
Grain yield	5020	kg	Palay			
Net grain yield	4116	kg	Palay			
Hauling of harvest	100.44	cavan	Palay	20.00	2557.02	51.89
Drying of <i>palay</i>	100.44	cavan	Palay	5.00	639.26	12.97
Snacks and meal for drying	2	MD	2 snacks and 1 meal (lunch)	80.00	160.00	3.25
Milling of <i>palay</i>	2222	kg	Milled rice	4.00	11,106.28	225.37
Total					45,950.04	932.43
OUTPUTS/GROSS INCOME	2222	kg	Milled rice	72.00	199,913.04	4,056.68
NET INCOME					153,963.00	3,124.25