**Table S1.** Gene-based/linked markers used for foreground selection for blast resistance and cooking quality for validation in the breeding lines.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Target Traits** | **Gene** | **Chr**. | **Marker name** | **SNP/Indel** | **Homozygous target SNP/Indel** | **LGC code/1** | **Aliquot ID/1** |
| Amylose content | *wxb* | 6 | wx\_5UTR\_G/T | G/T | T:T | 002–0052.1 | 1107690034 |
| Gelatinization temperature | *SSIIaJ* | 6 | ALK\_ex8\_SNP\_A/G | A/G | A:A | 002–0049.1 | 1103441167 |
| Short grain | *GS3* | 3 | GS3 | C/A | C:C | 002-0755.1 | 1132528814 |
| Blast resistance | *Pi-ta* | 11 | TBGI453598 | T/C | T:T | 002–0821.1 | 1140749274 |

1/ LGC group, 2015

**Table S2.** Thermal cycling conditions for polymerase chain reaction amplification used by HydrocyclerTM

|  |  |  |  |
| --- | --- | --- | --- |
| Stage | Temperature | Duration | Number of cycles |
| 1 | 94°C | 15 min | 1 |
| 2 | 94°C | 20 s | 10 |
|  | 61°C (decrease of 0.6°C per cycle to achieve a final temperature of 55°C) | 1 min |  |
| 3 | 94°C | 20 s | 26 |
|  | 55°C | 1 min |  |
|  |  |  |  |

**Table S3.** SNP/Indel marker information on the breeding lines identified in F3, F4 and F5

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Lines/**  **Varieties** | ***GS3*** | | | ***wx*b** | | | ***SSIIa*J** | | | ***Pi-ta*** | | |
| **F3** | **F4** | **F5** | **F3** | **F4** | **F5** | **F3** | **F4** | **F5** | **F3** | **F4** | **F5** |
| 62-2-17 | +/- | +/- | n/a | +/+ | +/+ | n/a | +/- | +/- | n/a | +/- | +/+ | n/a |
| 69-1-1 | +/+ | +/+ | +/+ | +/+ | +/+ | +/+ | +/- | +/+ | +/+ | +/- | +/+ | +/+ |
| 69-3-4 | +/- | +/+ | n/a | +/+ | +/+ | n/a | +/- | +/- | n/a | +/- | +/- | n/a |
| 72-4-1 | +/- | +/+ | n/a | +/+ | +/+ | n/a | +/- | +/+ | n/a | +/- | +/- | n/a |
| 72-4-2 | +/- | +/- | n/a | +/+ | +/+ | n/a | +/- | +/- | n/a | +/- | +/+ | n/a |
| 72-4-3 | +/- | +/+ | +/+ | +/+ | +/+ | +/+ | +/+ | +/+ | +/+ | +/- | +/- | +/+ |
| 72-4-9 | +/- | +/- | +/+ | +/+ | +/+ | +/+ | +/- | +/+ | +/+ | +/- | +/- | +/+ |
| AK | +/+ | +/+ | +/+ | +/+ | +/+ | +/+ | +/+ | +/+ | +/+ | -/- | -/- | -/- |
| Riceberry | -/- | -/- | -/- | +/+ | +/+ | +/+ | -/- | -/- | -/- | +/+ | +/+ | +/+ |

Remarks: + =desirable allele, - =undesirable allele, +/+ or -/- = homozygous, +/- = heterozygous, n/a = discarded line

AK = Akitakomachi

A diagram of a graph

Description automatically generated with medium confidence

**Figure S1.** Weather data from WS16-WS20 in the Phan District, Chiang Rai Province.