

Chapter 6 - Plant Breeding

Technology no.1

- 1. Name of the Technology:** High yielding paddy variety CAU-R1
- 2. Source of the technology:** Central Agricultural University, Imphal
- 3. Year of release:** 2009
- 4. Agro-climatic zone:** Sub tropical plain zone and sub tropical hill zone (upto1200 m MSL) in North East India
- 5. Detail description about the technology**

Variety	CAU-R1 (Tampaphou)
Parentage	Leimaphou x BR-1
Year of release	1999
Year of Notification	2009
Duration	125-130 days
Plant Height	100 cm
Area of Adaptation	Rainfed, wetland paddy fields of Manipur valley as main Kharif (Rainy season) transplanted and broadcast sown paddy crop
Maturity group	Medium (Under Manipur valley conditions)
Resistance to lodging	Non Lodging
Shattering/Threshing	Non Shattering/and non threshability
Seed Rate	a.) Direct seeding in puddled soil-60 kg/ha b.) Transplanted-50 kg/ha c.) SRI-5 kg/ha d.) ICM-16 kg/ha
Levels of fertilizer Application	High Performance under low applied fertilizer level of 60: 40: 40 kg/ha
Spacing	50 hills/sq.m (20 cm row to row and 10 cm plant to plant)
Brown rice recovery	High brown rice recovery-72%
Tolerance to	Rice blast, BLB, etc. under field condition and moderately susceptible in rice blast & BLB under controlled conditions
Submergence up to	7 days
Late Sowing	Up to July end
Reaction to	(Under field conditions): Tolerance to rice gall midge (Under controlled conditions): Moderately tolerance to rice gall midge

Disadvantages	High chaffy grains under higher level of nitrogen top dressing at reproductive stage
Recent position	1st Position in crop competition under farmers field during kharif 2009(8.8 t/ha) and kharif 2014-15 (12.3 t/ha)
Average yield	5-6 t/ha

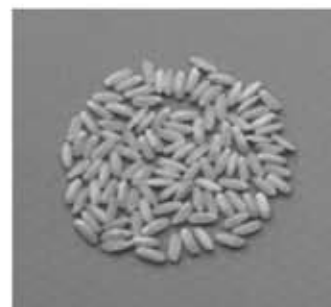


Fig. 1. CAU-R1(*Tamphaphou*)

6. **Critical inputs** : Nitrogen
7. **Observation be recorded** : Plant height (cm), duration and Yield (t/ha)
8. **Contact Address for relevant information:** Directorate of Research, Central Agricultural University, Iroishemba, Imphal-79500

Technology no.2

- 1. Name of the Technology:** Upland paddy variety CAU-R2
- 2. Source of the technology:** Central Agricultural University, Imphal
- 3. Year of release:** 2016
- 4. Agro-climatic zone:** Sub tropical plain zone and sub tropical hill zone (upto1300 m MSL) in North east India
- 5. Detail description about the technology**

Parentage	Cauvery x V20-B Female parent: Cauvery (TN-1x TKM-6) Male parent: V20B (a Chinese short duration semi-dwarf rice variety)
Breeding method	Modified Pedigree with single panicle descent method.
Adaptation	Upland and <i>Jhum</i> ecosystem
Description of variety	
a) Plant Stature	Semi dwarf (80 cm)
b) Yield improvement (%)over (Check var.China-988)	10-15 %
c) Maturity group	Extra early (95-100 days)
d) Panicle characteristics	
i. Panicle length	20cm
ii. Grains per panicle	100
iii. 1000-grain weight	25g
Levels of fertilizer Application	High Performance under low applied fertilizer level of 60: 40: 40 kg/ha
Average Rice Yield	2.5 t/ha



Fig. 1. CAU-R2 (*Tomthinphou*)

- 6. Observation be recorded:** Plant height (cm), duration and Yield (t/ha)
- 7. Contact Address for relevant information:** Directorate of Research, Central Agricultural University, Iroishemba, Imphal-795004

Technology no.3

- 1. Name of the Technology:** Short duration paddy variety CAU-R3
- 2. Source of the technology:** CAU, Imphal
- 3. Year of release:** 2012
- 4. Agro-climatic zone:** Sub tropical plain zone and sub tropical hill zone (upto1200 m MSL) in North east India
- 5. Detail description about the technology**

Parentage with details of its pedigree	<p>Female parent - RCM-7 (evolved from the cross between Kalinga-II and Palman having a height of about 100 cm with a duration of 115 days and an average yield of 4.0 t/ha)</p> <p>Male parent - V20 B (A maintainer line of V20 A but having field resistance to most of the diseases and short duration of about 90 days with an average yield of 3.5 t/ha)</p>
Breeding objectives	To develop an early rice variety as contingency crop for pre- <i>kharif</i> and late- <i>kharif</i> conditions
Specific areas of its adaptation/ adoption	Irrigated/rainfed valley areas of Manipur with an altitude from 750 to 950 m above MSL where <i>rabi</i> crop is to be grown
Recommended Ecology	Irrigated/Rainfed valley areas with medium to high soil fertility, pre- <i>kharif</i> to late- <i>kharif</i> sowing with high density planting

Description of the variety	
(a). Plant height	Semi-dwarf (85 cm)
(b). Range	80- 90 cm
50% flowering	≤ 70 days in late- <i>kharif</i> and 90 days during pre- <i>kharif</i>
85% maturity	≤ 95 days in late- <i>kharif</i> and 120 days during pre- <i>kharif</i>
(e). Maturity group (early, medium and late – wherever such classification exists)	Very early
(f). Reaction to major diseases (under field conditions)	(a). Blast - Moderately tolerant (b). Brown spot- Moderately tolerant (c). Rice Tungro Virus (RTV)- Resistant
(g). Reaction to major pests (under field and controlled conditions including store pests)	(a). Gall midge- Moderately tolerant (b). Stem borer- Moderately tolerant
Average Yield	4-5 t/ha in rainfed valley land and 2-2.5 t/ha in <i>jhum</i> land



Fig. 1. CAU-R3 (*Mangalphou*)

- 6. Observation to be recorded :** Plant height (cm), duration and Yield (t/ha)
- 7. Contact Address for relevant information:** Directorate of Research, Central Agricultural University,
Iroishemba, Imphal-795004

Technology no.4

- 1. Name of the Technology:** Semi-deep water paddy CAU-R4
- 2. Source of the technology:** CAU, Imphal
- 3. Year of release:** 2012
- 4. Agro-climatic zone:** Sub tropical plain zone and sub tropical hill zone (upto 1200 m MSL) in North east India
- 5. Detail description about the technology:**
CAU-R4 (*Eenotphou*) evolved from the cross between *Moirangphou Khokngangbi* x *Leimaphou*. The variety matures within 145 days with good eating quality of local preference with a milled rice recovery of about 68 percent. The variety withstands most of the diseases and insect pest of rice to a considerable extent. CAU-R4 performed well as a main paddy crop under low lying semi deep water rice ecosystems prevailing in the periphery of lakes (*Patlou*) of Manipur valley and similar situations in the NEH Region.

Description of the variety	
(a) Plant height	145 cm
(b) Duration	140-145 days
(c) Yield improvement (%) over (Check var. <i>Moirangphou Khokngangbi</i>)	15%
(d) Panicle characteristics	30 cm
i. Panicle length	130
ii. Grains per panicle	24 gm
iii. 1000-grain weight	
Reaction to major diseases in the field	Moderately tolerant to blast and brown spot
Average yield	3.8-4.5 t/ha

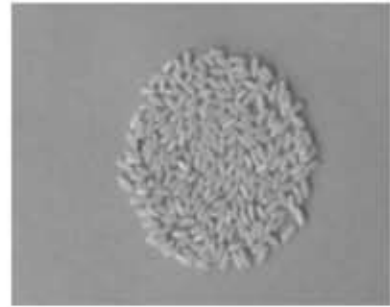
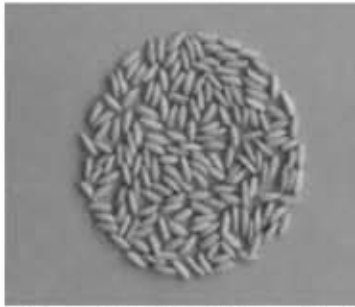


Fig. 1. CAU-R4 (*Enotphou*)

6. **Observation be recorded:** Plant height (cm), duration and Yield (t/ha)
7. **Contact Address for relevant information:** Directorate of Research, Central Agricultural University, Iroishemba, Imphal-795004

Technology no.5

1. **Name of the Technology:** New Paphiopedilum Variety, SHEETAL 1
2. **Source of the Technology:** ICAR-NRC on Orchids, Pakyong-737106, Sikkim
3. **Year of Release:** 2016
4. **Agro-Climatic Zones:** Sikkim, Arunachal Pradesh, Assam & Meghalaya
5. **Details description about the Technology:** Potted variety, medium plant height (17.73 cm), early flowering (Sept-Oct) and prolonged vase life, terminal spike emergence, moderately thin peduncle with shiny & deep maroon purple colour pubescence. Flower colour dominated by dorsal sepal colour in light shiny green colour with white margin, with medium brownish purple colour petals; dorsal sepal in orbicular ovate (semi-funnel) shaped with unique moderate purple colour on white background on upper surface. Nose of staminode pointed downwards with greenish yellow colour. Faster proliferation for vegetative multiplication, resistant to important diseases (root rot, blight) and insect pests (stem fly, mites & scale insects). Potted vase life > 4 months.



6. **Critical inputs requires:** Suitable for partial shaded, cool and humid mid altitude hill climatic conditions, tolerant to moisture stress and sensitive temperature stress conditions, suitable for growing in pots and protected cultivation.
7. **Observations to be recorded:** Nil
8. **Contact address for relevant information:** Director, ICAR-NRC on Orchids, Pakyong-737106, Sikkim. Phone: +91 3592 257954, E-mail: director.nrc@icar.gov.in, nrcorchids@rediffmail.com

