

## **Response to the allegations of bias levelled by ‘The Coalition for a GM-Free India’ and others in the process of evaluation of the two gene-edited rice lines Pusa DST-1 and DRR Dhan 100 (Kamala) in All India Coordinated Research Project on Rice (AICRPR) trials, 2023 and 2024**

Under **All India Coordinated Research Project on Rice (AICRPR)**, rice breeders nominate the lines developed by them for multi-location trials. The lines after receipt at AICRPR are blind-coded and sent to the AICRPR trial sites/centres (~ 100 trial sites across the country) for independent field evaluation and validation for period of 2-3 years. Every year, over 1200 breeding lines are tested under this system, which has been in operation since 1965 and has contributed to the development and release of more than 1,750 rice varieties and hybrids.

It is pertinent to note that the > 350 rice varieties presently grown across the country in an area of ~ 47 Mha have been tested, evaluated and validated under AICRPR and later released through Central Varietal Release Committee (CVRC, now known as Central Sub-Committee on Crop Standards, Notification and Release of Varieties) and State Varietal Release Committees (SVRCs) and notified in the Gazette of India.

AICRPR, established in 1965 has a set of procedures for evaluation and release of varieties and hybrids. The nominated entries (> 1200 entries are tested every year) are blind coded and sent to seven rice growing agro-ecological zones located across the length and breadth of the country. The trials are divided duration-wise, ecology-wise and also based on grain type. Further, special trials like near-isogenic line trials, Basmati trials, Aromatic grain type trials, Japonica trials are also conducted every year in addition to the above-mentioned criteria. The nominated, blind-coded entries are sent to 45 funded centres and > 100 voluntary centres across the country, depending on which trial an entry has been nominated. Therefore, each entry is tested in approximately 5-30 centres (depending on the trials for which it gets nominated). The entries are tested and validated for a period of 2-3 years (depending on the trial) and based on their performance, entries are selected for varietal identification, possible released and notification through CVRC/SVRCs. Breeding lines nominated under NIL and GEL trials are tested and validated for 2 years.

**The near-isogenic line (NIL) trials**, carried out since 2005 are done to evaluate the breeding lines developed through the process of marker-assisted backcross breeding and gene-editing. As per the revised guidelines for evaluation and release of NILs (finalized and approved in the AICRPR group meeting held in 2017 at Assam Agricultural University, Jorhat), the **NILs** or gene-edited lines (**GELs**) should be evaluated along with their parent varieties (which are generally mega-rice varieties, popular across the country) for their equivalent or superior performance and also for specific stress tolerance (or superior trait) in the **Target Performance Environments (TPEs)**. TPEs for a NIL or GEL refers to the AICRPR trial locations in the Indian States wherein the original parent variety has been released and notified.

**The NIL or GEL, which is nominated for evaluation in AICRPR trials, has to show equivalent performance with respect to the original parent variety for the agro-morphological traits like yield, grain and cooking quality features, etc. Further, it has to show superior performance for the trait improved (for e.g. disease or pest resistance, abiotic stress tolerance, yield, etc.) in the TPEs (i.e. the States wherein the original parent variety has been released and notified) for its promotion/varietal identification.**

By scrupulously following the above-mentioned procedures, **DRR Dhan 100 (Kamala)** and **Pusa DST Rice 1**, which were developed through **gene editing**, were evaluated in **NIL/GEL trials** during **2023 and 2024** under the **All India Coordinated Research Project on Rice (AICRPR)**-the nodal and sole agency in India responsible for evaluating and recommending rice varieties for release. The locations tested include the Indian states, which have been identified as the Target Performance Environments (TPEs) for the parents, viz., MTU1010 and Samba Mahsuri (i.e. South Indian States located in Zone VII).

A duly constituted monitoring team, consisting of experts from different disciplines, monitored the conduct of the trials at the locations. Based on the observations of the monitoring team, regarding the proper conduct of the trials, based on the stress levels, and based on the statistical significance of the trials conducted at each location, **data was considered only from qualified locations in TPEs, wherein the trials were conducted properly.** It should be noted that, although the test entries are evaluated at multiple locations/zones, they are considered for promotion, based on the performance vis-à-vis their parents on qualified TPE locations as **per the standard procedures of AICRPR as being followed in all type of trials in rice and even in all other AICRPs too.** Therefore, it is submitted that analysis of data from all the locations in the country by ‘The Coalition for a GM-Free India’ is not only unscientific, but also misleading.

#### **Performance of Pusa DST-1 in AICRPR trials:**

In AICRPR multi-location trials, the identification of any culture as ‘variety’ is considered after evaluation of its performance in multiple locations, primarily, under field conditions, in addition to consideration of supporting data obtained from artificial (in-vitro) screening facilities. The entry, **IET32043** (which was later identified for release as **Pusa DST-1**) was screened during **Kharif 2023 and Kharif 2024** AICRPR trials intensively under **field conditions in normal field plots** (Reference: Pages 1.109, 1.112, 1.113, 1.684 of Progress report Vol-I, 2023; page no 9.27 of Progress report Vol-I, 2024). They were also assessed in field plots affected by salinity/alkalinity during **Kharif 2024** (Reference: page no 6.16, 6.21, 6.61, 6.62, 9.27 of Progress report Vol-I, 2024). Data was considered only from those locations in the TPEs in **Zone VII (the TPE for MTU1010)**, where the stress levels were adequate, the trials were conducted properly (as reported by the monitoring team) and data received was considered to be statistically significant.

**IET32043 produced yield levels equivalent to its wild-type parent, MTU1010 under normal conditions during 2023 and 2024**, while it performed **significantly superior** over its parent, **MTU1010** under **Inland and coastal salinity and alkalinity conditions in the TPE locations** considered for analysis.

Under stress-prone field plots in the TPEs (locations in Zone VII), under **alkaline conditions**, the **gene-edited line** gave a mean grain yield of **3731 kg/ha**, which is significantly superior over **MTU 1010 (3254 kg/ha)**. Under **inland saline conditions**, **IET 32043** recorded significant yield superiority, with a mean grain yield of **3508 kg/ha** as compared to **MTU1010 (3199 kg/ha)**; and it produced mean grain yield of **2493 kg/ha** as compared to **MTU 1010 (1912 kg/ha)** with significant yield superiority in **Zone-VII** under **coastal saline conditions**. It is pertinent to note that **Zone VII** is the **TPE zone/region** where **MTU1010** was released and is widely being cultivated.

It is a well-known fact that **MTU1010 is popularly grown in several parts of Southern India** including the states of AP, Telangana, Tamil Nadu, Karnataka and Puducherry. The gene-edited mutant of MTU1010, i.e. **IET32043 (Pusa DST 1), is mainly targeted to replace the popular variety, MTU1010, in the rice growing regions of Southern India** (i.e. zone VII). Based on the data obtained through multi-location field trials of AICRPR from Zone VII, the performance of IET32043 under both normal and stress-prone conditions was discussed and considered. **Further, its grain and cooking quality were observed to be equivalent to MTU1010 (as per the AICRPR guidelines) (Ref: Page no. 1.124 of Annual Progress Report 2023Vol. I-Varietal Improvement).** Therefore, the entry was identified during the AICRPR meeting held in April 2025.

It is pertinent to note that ‘**The Coalition for a GM-Free India**’ has considered **performance of IET32043 all across the country** (which is not correct and any breeding line of rice is not expected to perform well across the whole country). Varieties like MTU1010 and Samba Mahsuri are well adapted to a particular ecology (i.e. only Zone VII, their TPE) may not perform well across the country. ‘**The Coalition for a GM-Free India**’ should have considered the performance of the entry mainly in the **TPE for MTU1010, i.e. Zone VII as IET32043 is targeted to replace MTU1010 in Zone VII.**

#### **Performance of DRR Dhan 100 (Kamala) in AICRPR trials:**

As mentioned earlier, for any breeding line of rice nominated in NIL/GEL trials of AICRPR, only the data from those locations in TPEs wherein the trials were carried out as per recommended procedures (ascertained by the monitoring team visiting the locations/trial sites) and from where the data is statistically significant is considered for their promotion/dropping/identification.

**IET32072 (later identified as DRR Dhan 100; Kamala), was tested at multiple locations across the country during 2023 Kharif season. The data from 7 locations in TPE for Samba Mahsuri was considered for promotion** [i.e. those locations where the trials were carried out as per prescribed procedures were only considered] (Ref: Page nos 1.426, 1.427, 1.431, 1.683 of Progress report Vol-I, 2023). Based on the results obtained at the **7 locations in TPE for Samba Mahsuri (located in Zone VII; Maruteru, Bapatla, Warangal, Aduthurai, Coimbatore, Mandya, Kurumbapet-Puducherry)**, it was observed that **IET32072 gave a mean yield of 5270 kg/ha, while Samba Mahsuri recorded 4829kg/ha (yield advantage of 9.13% and CD of 308).** Further, in the above locations, the **mean days to 50 % flowering (DFF)** with respect to **IET32072 was recorded as 95 days** and it was **107 days for Samba Mahsuri (with 12 days early maturity observed in IET32072).**

Further, during **Kharif 2023, IET32072 was also evaluated** in other Zones like **Zone V (Central Zone)** and **Zone III (Eastern Zone)**, wherein Samba Mahsuri is cultivated to some extent (Ref: Page nos 1.422, 1.423, 1.428 of Progress report Vol-I, 2023; Page nos 1.424 and 1.429 of Progress report Vol-I, 2023). **In Zone V, based on the data from 2 locations (where the trials were carried out properly), IET32072 recorded yield of 7905 kg/ha and Samba Mahsuri recorded 5375 kg/ha (with a clear yield advantage of 47.96 % with a CD of 993) and a difference in maturity period by - 2 days was observed. In Zone III, the data from 5 locations were considered for analysis (as explained earlier) and IET32072 had a yield of 3575 kg/ha and Samba recorded 3097 kg/ha (with 15.41% yield advantage and a CD of 397) and 9 days earliness noticed with respect to IET32072).**

During 2023-24 Rabi season, IET32072 was tested across 8 location (Ref: Page nos 2.223, 2.227, 2.228, 2.229, 2.232, 2.233 of Progress report Vol-I, 2024). The entry recorded a mean yield of 5243 kg/ha, while Samba Mahsuri gave 4299 kg/ha (with a yield advantage of 21.95 % with a CD of 441). Further, IET32072 recorded a mean DFF of 94 days, while it was 99 days for Samba Mahsuri (with 5 days early maturity observed in IET32072). **The performance of IET32072 in Rabi 2023-24 season was selectively ignored and not included in the analysis by ‘The Coalition for a GM-Free India’.**

During 2024 Kharif season, IET32072 was evaluated in multiple locations across the country and the data from 6 locations in TPE was considered for analysis (Ref: Page nos 9.25 of Progress report Vol-I, 2024). IET32072 recorded a mean yield of 4961 kg/ha, while Samba Mahsuri gave a yield of 4494 kg/ha (yield superiority of 10.41 % with a CD of 387). Further, IET32072 also matured early (by 5.5 days) as compared to Samba Mahsuri.

Further, during 2024 Kharif season, IET32072 was also evaluated in Zone III and Zone V (as Samba Mahsuri is cultivated to some extent in these two zones) (Ref: Page nos 9.25 of Progress report Vol-I, 2024; Page nos 9.25 of Progress report Vol-I, 2024). The entry showed 42 % and 6.2 % yield superiority in Zone II and Zone V respectively and showed early maturity by 9 and 2 days, respectively.

The grain and cooking quality of IET32072 was found to be equivalent to Samba Mahsuri (Page no. 1.432 of Annual Progress Report 2023 Vol. I-Varietal Improvement). Based on the performance across 3 seasons (i.e. Kharif 2023, Rabi 2023-24 and Kharif 2024), it is evident that IET32072 (later identified as DRR Dhan 100/Kamala) is superior to Samba Mahsuri in terms of yield performance in Zone VII (i.e. TPE for Samba Mahsuri) and additionally, in Zone III and Zone V. Hence, it was identified in the AICRPR Group Meeting in 2025.

It is pertinent to note that ‘The Coalition for a GM-Free India’ considered performance of IET32072 across the country (which is not a correct, procedure for evaluation of NILs/GELs). They should have considered the performance of the entry mainly in the TPE for Samba Mahsuri, i.e. Zone VII as IET32072 is targeted to replace Samba Mahsuri, mainly in Zone VII.

The following points are also noted:

1. ‘The Coalition for a GM-Free India’ have considered the performance of Pusa DST-1 and DRR Dhan 100 across all locations tested and ignored their performance in their Target Performance Environments (TPEs; i.e., the Southern States in Zone VII, in which the respective parents, viz., MTU1010 and Samba Mahsuri were released and are extensively cultivated).
2. Pusa DST-1 was comparable to MTU1010 with respect to yield in the test locations in Zone VII (i.e. TPE) under normal conditions in 2 seasons, viz., Kharif 2023 and Kharif 2024 (which is expected for gene-edited line) and showed significantly higher yield in stress prone locations/hot-spots in Zone VII during Kharif 2024.
3. DRR Dhan 100 demonstrated a higher yield and early maturity as compared to Samba Mahsuri in the test locations in Zone VII (i.e. TPE locations) in 3 seasons, i.e. Kharif 2023, Rabi 2023-24 and Kharif 2024 and Zone III and Zone V (non-TPE locations; but at

some locations where Samba Mahsuri is cultivated) in 2 seasons, i.e. Kharif 2023 and Kharif 2024.

4. **‘The Coalition for a GM-Free India’ have selectively highlighted** the locations, wherein the gene-edited lines have not shown superiority to their respective parents; while **ignoring** the significantly **superior performances** shown by the two gene-edited lines in **many TPE locations/trial sites**.
5. In order to ensure transparency and accountability, ICAR has put the entire data from AICRPR trials in public domain. By selective highlighting/cherry picking of data from some locations, and ignoring the data from many locations in TPEs, **‘The Coalition for a GM-Free India’ have done a disservice to Indian Science**.
6. It is also submitted that the main grouse for **‘The Coalition for a GM-Free India’** is not the way the entries are evaluated in AICRPR trials and **their real grouse is that Indian scientists have developed two products through gene editing, a technology, which they are bitterly against. In fact, the scientists from ICAR have shown significant capability for development of products through gene editing and their stringent evaluation through multi-location trials in a transparent manner, a first across any country in the world.**
7. Over the past three years, more than 250 government officials, policymakers, media representatives, private companies, representatives from the print and electronic media and over 5,000 farmers have visited the experimental fields at both ICAR-IARI and ICAR-IIRR and personally witnessed the exceptional performance of Pusa DST-1 and DRR Dhan 100 (Kamala).
8. It is suggested that interested researchers, farmers and other stakeholders may visit, observe, and make their own independent assessment about the performance of the two gene-edited lines being grown in the respective ICAR Institutes.

**ICAR** believes that these varieties should reach farmers’ fields as quickly as possible; because it is, the farmers themselves, who deserve to decide their future based on real-world performance. **Preventing these varieties from reaching them would be an injustice to the farming community, denying them the opportunity to evaluate and adopt (or reject) the technology on their own terms.**

**ICAR categorically denies each and every allegation made by the ‘The Coalition for a GM-Free India’ and point by point rebuttal of the allegations/comments is given below:**

| S. No. | Allegations/Comments made by ‘The Coalition for a GM-Free India’           | ICAR’s reply                                                                                                                                                                                |
|--------|----------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|        | <b>Pusa DST-1 (IET32043)</b>                                               |                                                                                                                                                                                             |
| 1.     | Data for target traits in 2023 is unavailable due to limited seed quantity | The trait verification (i.e. stress tolerance) data for a single year in multilocation trials conducted in target environment where high stress level (salinity and alkalinity) is ensured, |

|    |                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|----|---------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    |                                                                                                                                                   | are sufficient for consideration in NILs trials. Hence, trait verification data from 2024 was considered.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| 2. | Overall, IET32043 recorded only on par yield performance of – 4.6 % over recurrent parent, MTU1010 in normal conditions in 2023.                  | Pusa DST Rice-1 is an isogenic line (improved version for specific trait ie salinity and alkalinity tolerance) of MTU 1010 developed through genome editing. Therefore, under normal condition it is expected to perform at par with MTU 1010. However, its real advantage is manifested under stress condition in Zone VII. Under normal conditions, IET32043 recorded yield levels, which was not statistically lower than MTU1010 across 21 locations in the country (both TPE and non-TPE locations) ( <b>Reference: Pages 1.109, 1.112, 1.113, 1.684 of Progress report Vol-I, 2023</b> ). Further, under TPE locations (Maruteru, Ragolu, Rajendranagar, Kunaram, Warangal, Coimbatore, Moncompu, Pattambi, Mandya, Mugad, Brahmavar, Gangavathi and Karaikal), IET32043 recorded marginal superiority with respect to MTU1010 (yield increase of 0.28 %). Hence, it was considered on par with its original parent. |
| 3  | In 12 of the 20 sites tested in Kharif 2023, Pusa DST-1 under-performed vis-à-vis to its parent.                                                  | As explained above, IET32043 showed on-par yield levels with MTU1010 under both TPE and non TPE locations under normal condition (non-stress).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| 4  | In Kharif 2024, Alkalinity tolerance was tested in 3 zones, Pusa DST-1 underperformed in 2 zones. Had only marginal superiority of 1.6 % overall. | Under stress-prone field plots in the TPEs located across 3 states and 5 TPE locations in Zone VII (Trichy, Annamalainagar, Karaikal, Puducherry and Kampasagar), Pusa DST-1 gave a mean grain yield of 3731 kg/ha, which is significantly superior over MTU 1010 (3254 kg/ha) under alkaline conditions (with a yield superiority of 14.66 %) ( <b>page no 6.16, 6.21, 6.61, 6.62, 9.27 of Progress report Vol-I, 2024</b> ). Data from the stress prone locations in TPE were only considered as per the standard procedures prescribed for evaluation of the NILs in AICRPR.<br>For alkalinity, IET32043 was evaluated across Zone II, Zone III, and Zone VII. Its performance in Zone II and Zone III was statistically at par with the check variety MTU1010. Notably, in Zone VII (TPE), IET32043 performed significantly better than MTU1010 (page 6.16).                                                           |
| 5  | Inland salinity Tolerance tested in only 3 sites, 2 zones and 1 season. Only one site, 1 season results is being used to draw conclusions.        | In Kharif 2024, only two locations, Gangavathi and Vytilla conducted inland salinity trials in Zone VII (TPE) ( <b>page no 6.16, 6.21, 6.61, 6.62, 9.27 of Progress report Vol-I, 2024</b> ). Data from Vytilla was not considered due to low stress levels. IET32043 recorded significant yield superiority, with a mean grain yield of 3508 kg/ha as compared to MTU1010 (3199 kg/ha) at Gangavathi (yield superiority of 9.66 %).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| 6  | Coastal salinity tolerance tested in 3 zones shows that the gene-edited line has not                                                              | In Kharif 2024, the entry IET32043 recorded mean grain yield of 2493 kg/ha as compared to MTU 1010 (1912 kg/ha) with significant yield superiority of 30.36 in 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

|    |                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    | yield superiority in any zone. While admitting the same in one page of the official report, another conclusion is presented in another page.                                                                                                                                                             | locations in TPEs (i.e. Vytilla and Brahmavar) in Zone-VII under coastal saline conditions ( <b>page no 6.16, 6.21, 6.61, 6.62, 9.27 of Progress report Vol-I, 2024</b> ).The information given in Page 6.58 pertains to evaluation of the entries across the country and not in the TPE for IET32043.                                                                                                                                                                                                                                                                                                                                                                                                           |
| 7  | Page 9.27 of Annual Progress Report of 2024 concludes: “hence, IET 32043 is found promising for the states of MTU 1010 gazette notified and adopted areas”! Selectively drawing from 8 locations of the Southern Zone, after testing in 20 sites, wrong conclusions are being made even about this zone. | <p>Superior performance of NIL or GEL entry in stress prone locations of its TPE is to be considered for its promotion/deletion (as per guidelines of AICRPR). IET32043 showed superior performance in 8 different stress prone locations in its TPE (i.e. Zone VII, Southern Zone in Alkalinity, coastal salinity and Inland salinity) as compared to its parent, MTU1010. Hence, it was identified as promising.</p> <p>MTU 100 is also grown in the locations which do not suffer from salinity stress and the performance of IET32043 is at par to MTU 1010 in these locations, therefore, farmers in these areas can also grow IET32943, hence, the recommendation is made for MTU 1010 notified areas.</p> |
| 8  | For Inland Salinity, Pusa DST-1 is recorded to have some superiority in limited testing in 2 of 3 locations, one season. Only one site data is being used to present conclusions.                                                                                                                        | <p>As per the prescribed procedures for evaluation of NILs/GELs in AICRPR, only those locations in the TPE for the entry (i.e. Zone VII, Southern Zone), wherein stress levels were adequate, were considered for analysis. Only one location out of two, viz., Gangavathi showed high stress levels and hence was considered for further analysis.</p> <p>Page 6.6, first para of Annual Progress Report 2024 Vol. I – Varietal Improvement -”at Vytilla, the trial experienced low stress level due to heavy rains and so data not considered”</p>                                                                                                                                                             |
| 9  | For Alkalinity, we showed that parent MTU-1010 outperforms Pusa DST-1 in 5 out of 8 locations tested. In two Zones, Pusa DST-1 under-performed, and in another, an incorrect average figure was used to project superior yield!                                                                          | <p>As informed earlier, for promotion/deletion of NILs/GELs in AICRIP trials, the performance under stress should be considered for the entries only in the TPEs (i.e. Zone VII, Southern Zone). For alkalinity, under stress-prone field plots in the TPEs (5 locations) in Zone VII, Pusa DST-1 gave a mean grain yield of 3731 kg/ha, and showed significant superiority over MTU 1010 (3254 kg/ha) with a superiority of 14.66 % under alkaline conditions.</p> <p>The performance of Pusa DST 1 in non-TPE locations was not considered.</p>                                                                                                                                                                |
| 10 | For Coastal Salinity, the report itself actually concludes that Pusa DST-1 failed to register yield superiority in any zone (Page 6.58)! However, in the Summary Table of Page 9.27, a 30% yield increase is shown!                                                                                      | <p>Wherever, normal conditions exist, the performance is likely to be at par. Superiority has to be seen in stress environment, which is the basis for its recommendation. The entry IET32043 recorded mean grain yield of 2493 kg/ha as compared to MTU 1010 (1912 kg/ha) with significant yield superiority of 30.36 % in TPEs in Zone-VII under coastal saline conditions. The Table presented in Page 6.58 reflects performance of the entry across different zones, which is not the basis for its recommendation.</p> <p>Under coastal salinity in Zone-II and VI, the difference in</p>                                                                                                                   |

|    |                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    |                                                                                                                                                                                                                                                                 | yield of MTU1010 and IET32043 is statistically non-significant (page 6.58 of Annual Progress Report 2024 Vol. I – Varietal Improvement). While in Zone-VII, data of Machilipatnam, Puducherry, Karaikal was not considered in final analysis due to low stress levels/monitoring team report. Therefore, the final analysis as shown in page 9.27 of Annual Progress Report 2024 Vol. I – Varietal Improvement, IET32043 showed 30.36% significant yield advantage over MTU1010.                                                                                                                                                                                                                                                                                             |
| 11 | Grain and cooking quality variations between Pusa DST 1 and MTU1010                                                                                                                                                                                             | The range of variation observed between the two entries are within statistically acceptable range as per procedures for evaluation of grain and cooking quality traits under AICRPR ( <b>Page no. 1.124 of Annual Progress Report 2023Vol. I-Varietal Improvement</b> ). Hence, their grain and cooking qualities were considered equivalent.                                                                                                                                                                                                                                                                                                                                                                                                                                |
|    | <b>DRR Dhan 100 (IET32072; Kamala)</b>                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| 1  | <p>“In 2023, it exhibited significant yield superiority in ALL tested sites, resulting in an overall 17.5% higher yield than BPT 5204 Samba Mahsuri.”</p> <p>In reality, in 8 of the 19 sites where trials were held in Kharif 2023, Kamala underperformed.</p> | <p>In Kharif 2023, IET32072 (DRRDhan 100)was tested in 23 locations. The data of 14 locations was considered for analysis, based on report of the monitoring team, and based on the statistical significance of the data. During this season, the entry had a 9.13% yield advantage in Zone-VII (TPE Zone for IET32072) (<b>Page nos 1.426, 1.427, 1.431, 1.683 of Progress report Vol-I, 2023</b>), 47% in zone V (<b>Page nos 1.424 and 1.429 of Progress report Vol-I, 2023</b>), and 15.41% in zone III (<b>Page nos 1.422, 1.423, 1.428 of Progress report Vol-I, 2023</b>).</p> <p>In all the qualified locations, IET32072 (DRR Dhan 100) performed superior than the Samba Mahsuri, except Pusa (Samastipur, a non-TPE), where it showed equivalent performance.</p> |
| 2  | In two zones where it was tested, it underperformed significantly (Zone III Eastern and Zone V Central).                                                                                                                                                        | <p>In Kharif 2023, as indicated above, in trial locations in Zone III and Zone V, where the trials were conducted properly and from where data was considered for analysis (as described earlier), IET32072 recorded a yield advantage of 47.06 % in Zone V (<b>Page nos 1.424 and 1.429 of Progress report Vol-I, 2023</b>) and 15.41 % in Zone III (<b>Page nos 1.422, 1.423, 1.428 of Progress report Vol-I, 2023</b>).</p> <p>Further, Zone III and Zone V are not essentially TPEs for Samba Mahsuri.</p>                                                                                                                                                                                                                                                               |
| 3  | In Southern Zone (Zone VII), there is no significant yield increase (only 4.3%).                                                                                                                                                                                | In Kharif 2023, based on the data from 7 qualified trial locations in TPE (i.e. Zone VII) from where the data was considered for analysis, IET32072 showed a yield advantage of 9.13 %, which is significant ( <b>Page nos 1.426, 1.427, 1.431, 1.683 of Progress report Vol-I, 2023</b> ).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

|    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 4  | Local checks performed better! The basis for the claim made is not present in the published report, and data points otherwise.                                                                                                                                                                                                                                                                                                                                                                                     | In NIL/GEL trials, the data with respect to local checks are not considered, due to difference in duration, grain type, etc. (as per the procedure prescribed for evaluation of NILs/GELs in AICRPR). With respect to NILs and GELs, comparison is always done with the original parent (Samba Mahusri in this case).                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| 5  | In Kharif 2024, IET 32072 was evaluated in 21 locations across 3 zones (III, V and VII).<br>“In this trial, two BPT 5204 check entries were included to compare the genome edited line and other near-isogenic lines. It was observed that data from few locations differed between the same check entries, and as a result, they were excluded from the analysis of the genome-edited line’s performance. Therefore, data from only six locations were used for assessing the performance of genome edited line”. | Even though IET32072 was evaluated in different locations across the country, its performance in the TPE (i.e. Zone VII) formed the basis for its promotion/deletion.<br><br>During 2024 Kharif season, IET32072 was evaluated in multiple locations across the country and the data from the 6 qualifying locations in the TPE was considered. IET32072 recorded a mean yield of 4961 kg/ha, while Samba Mahsuri gave a yield of 4494 kg/ha (yield superiority of 10.41 % in IET32072) in TPE ( <b>Page nos 9.25 of Progress report Vol-I, 2024</b> ).<br><br>In non-TPE qualified locations, IET32027 showed a 6.2 % and 42 % yield superiority over Samba Mahsuri, in Zone V and Zone III, respectively ( <b>Page nos 9.25 of Progress report Vol-I, 2024</b> ). |
| 6  | In reality, the overall mean is -4% when it comes to the Kamala Kharif 2024 DSR yield, compared to the parent. However, six sites are picked up in Page 9.25, for a conclusion of 17.21% higher yield. No data that assessed the performance of Kamala in Kharif 2024 is presented in the annual report, other than under DSR where it fared poorly compared to its parent, when the overall mean is calculated.                                                                                                   | IET32072, along with its parent, Samba Mahsuri are mainly targeted to the irrigated transplanted ecosystem (with > 120 days DFF). Under irrigated transplanted ecosystem, in trial locations in Zone VII (TPE), IET32072 showed superior performance as compared to Samba Mahsuri.<br><br>IET32072 was tested under DSR (Direct Seeded Rice) trial to assess its suitability under direct-seeded cultivation. In Zone VII (TPE), under DSR, it showed 6.32 % superiority.                                                                                                                                                                                                                                                                                           |
| 7. | Grain and cooking quality variations between Pusa DRR Dhan 100 and Samba Mahsuri.                                                                                                                                                                                                                                                                                                                                                                                                                                  | The range of variation observed between the two entries are within statistically acceptable range as per procedures for evaluation of grain and cooking quality traits under AICRPR. Hence, their grain and cooking qualities were considered equivalent( <b>Page no. 1.432 of Annual Progress Report 2023Vol. I-Varietal Improvement</b> ).                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 8. | Different between DRR Dhan 100 and Samba                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | IET32072 showed superior/equivalent values as compared to Samba Mahsuri for PAN in its TPE (i.e. Zone VII)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

|   |                                                                                                          |                                                                                                                                                                                                                                                           |
|---|----------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|   | Mahsuri with respect to Panicle per square meter (PAN).                                                  | during Kharif 2023, Rabi 2023-24 and Kharif 2024. PAN values are not considered for promotion/deletion of entries                                                                                                                                         |
| 9 | No significant difference between DRR Dhan 100 and Samba Mahsuri with respect to days to 50 % flowering. | IET32072 showed shorter duration (with 7-22 days earliness) as compared to Samba Mahsuri in its TPE (i.e. Zone VII) during Kharif 2023, Rabi 2023-24 and Kharif 2024. The entry also showed shorter duration in non-TPE locations in Zone V and Zone III. |

**Rabi 2023 data has been deliberately ignored by ‘The Coalition for a GM-Free India’:**

During 2023-24 Rabi season, IET32072 was tested across 8 TPE locations (where rice varieties like Samba Mahsuri are grown as a Rabi crop) (**Page nos 2.223, 2.227, 2.228, 2.229, 2.232, 2.233 of Progress report Vol-I, 2024**). IET32072 recorded a mean yield of 5243 kg/ha, while Samba Mahsuri gave 4299 kg/ha (with a yield advantage of 21.95 % with respect to the gene-edited line, IET32072). Further, IET32072 recorded a mean DFF of 96 days, while it was 102 days for Samba Mahsuri (with 6 days early maturity observed in IET32072). The performance of IET32072 in Rabi 2023-24 season was selectively ignored and not considered by ‘The Coalition for a GM-Free India’.