

## **Rice CO 53: A High Yielding Short Duration drought tolerant rice variety for drought prone districts of Tamil Nadu**

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Early duration drought tolerant rice culture CB 06803, a derivative of the cross PMK (R ) 3 / Norungan was released as Rice CO 53 during the year 2020 as an alternate variety with 115 -120 days duration with additional desirable features like high yield and drought tolerance and better physiological efficiency. This culture with semi dwarf stature has efficient tillering capacity, long droopy panicles with a highly acceptable plant characters and is a good replacement for the rice variety Anna (R) 4 due to its high grain yield and pest and disease resistance. In the overall analysis, the culture CB06803 recorded an overall mean grain yield of 3718kg/ha which was 12.19 per cent improvement over TKM (R) 12 and 14.08 per cent over Anna (R) 4 under dry condition; 3866 kg/ha with 18.40 per cent improvement over TKM (R) 12 and 8.67 per cent over Anna (R) 4 under semi dry condition. It is moderately resistant to WBPH and to multiple diseases viz., leaf blast, neck blast, sheath rot, brown spot and RTD under artificial condition. It produces white short bold rice with high milling percentage (69.6), head rice recovery (59.6%) and suitable for idly making. The culture, CB 06803 had better agronomic efficiency than TKM (R)12 and Anna (R) 4 by registering more number of productive tillers per plant and grain yield under control and drought. CB 06803 had better physiological efficiency under drought than TKM (R) 12 and Anna (R) 4 by registering higher RWC, total chlorophyll content, chlorophyll stability index, photosynthetic rate, stomatal conductance, photo chemical efficiency. The culture has higher proline content than TKM (R) 12 and on par with Anna (R) 4. It has higher catalase activity than Anna (R) 4. CB 06803 had better physiological efficiency under drought by possessing partial closure of stomata as that of Sahbagidhan. Rice CO 53 with higher yield under drought, better disease resistance and short bold grains was released during 2020 and suitable for cultivation in drought prone districts of Tamil Nadu as direct seeded rainfed or semi dry rice. This variety notified during 2020 (Gazette Notification No.: S.O. 3482 (E) dated. 7<sup>th</sup> October, 2020).

## **Rice ADT 54 (AD 09493)-A medium duration rice variety with high yield and good cooking quality**

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The Rice variety ADT 54 (Culture AD09493) is a cross derivative of I.W. Ponni / Banskathi with a medium tall erect plant habit. It matures in 132 days (100-135 days) and fits well with *thaladi* / *late samba* season as a transplanted crop in Tamil Nadu. The plant type is compact with very long panicles possessing an average of 350 spikelets/panicle. The variety ADT 54 has recorded a mean productivity of 6307 kg/ha with 11.21 percent increase over BPT 5204 and 8.28 percent over TNAU Rice ADT49. The potential yield of 8654kg/ha was recorded by the Coimbatore center in the National trial. In Adaptive Research Trials, the culture AD 09493 (ADT54) recorded more than seven tonnes of grain yield in around 17 locations out of 106 trials thus proving its adaptability to different soils and climate. In National varietal trial (AICRP) also, the variety performed better than standard checks in the Southern Zone. The variety ADT 54 shows resistance reaction to leaf folders and exhibits moderate resistance to blast disease and yellow stem borer. It has good Head Rice Recovery (61.3%). It produces medium slender grains similar to I.W.Ponni and the thousand grain weight is 16.5 grams. The cooked rice is white with intermediate amylose, soft gel consistency and moderate gelatinization temperature. It can be cultivated as a choice variety in the tracts of I.W. Ponni as it possess cooking qualities equivalent to I.W.Ponni and superior in grain yield besides manifesting resistance to neck blast. The variety was released and notified during 2020 (Gazette Notification No. 3482 (E) dated 7<sup>th</sup> October 2020).

## **Sorghum CO 32 (SPV 2369)- A New High Yielding Dual Purpose Sorghum Variety Suitable for Tamil Nadu**

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Sorghum CO 32 is a hybrid derivative of the cross APK 1 x M35-1 developed at Department of Millets, Centre for Plant Breeding and Genetics, TNAU, Coimbatore. The variety was evolved with an objective to develop dual purpose sorghum variety with improved tolerance to shoot fly and stem borer. Sorghum CO 32 has been tested for its adaptability under multilocation trials and Adaptive Research trials in Tamil Nadu. Under rainfed condition, CO 32 recorded an average grain yield of 2445 kg/ ha and fodder yield of 6490 kg/ha with an increase of 10.30% and 10% respectively over the ruling sorghum variety CO30. It also excelled K 12 by recording 9.17 % and 13 % increase for grain and fodder yield, respectively. Under irrigated situation, CO 32 recorded an average grain yield of 2911 kg/ha and fodder yield of 11710 kg/ha with percent yield increase of 12 and 10 respectively over sorghum variety CO 30. Sorghum CO 32 also performed better over K12 by recording 11.32 % and 14 % increase for grain and fodder yield, respectively under irrigated condition. In AICRP on Sorghum, National level testing CO 32 (SPV 2369) recorded a mean grain yield of 3100 kg/ha and fodder yield of 11453 kg/ha and excelled CSV 17 by recording 6.11 and 29.99 percent increase of grain and fodder yield, respectively. It matures in 105 - 110 days, Grains are highly acceptable, Yellow white in colour, borne on medium semi-compact ear heads. Sorghum CO 32 is moderately resistant to shoot fly and stem borer and moderately resistant to downy mildew and grain mould. It has high protein (11.31-14.66%) and fibre content (4.95-5.80%) along with better cooking quality traits (Cooking grade 9). The stover quality is also best with 6.15 % protein and invitro dry matter digestibility of 54-58%. Hence, the new sorghum variety CO 32 was released by Tamil Nadu Agricultural University, Coimbatore during 2020 for general cultivation in Tamil Nadu for both under rainfed and irrigated condition. This variety has also been notified by Ministry of Agriculture and Farmers welfare during 2020 as per Gazette Notification No.: S.O. 3482 (E) dated. 7<sup>th</sup> October 2020) for including in the seed chain.

## **A high yielding tenai variety ATL 1**

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The tenai variety ATL 1 (culture TNSi 331) is a cross derivative of PS 4 x Ise 198. It was evolved in Centre of Excellence in Millets, Athiyandal. It is a short duration variety (80 – 85 days) with an average grain yield of 2117 kg / ha which was 9.6 percent increase as compared to the check CO (Te)7, under rainfed condition. The variety was also observed to record an average straw yield of 2785 kg/ha which was 14.8 percent increase over the check. Its grain and straw yield in station trials was 2813 and 4530 kg/ha; in Multi Location Trials it was 2192 and 3079 kg/ha and in Large Scale Demonstration it was 3009 and 4109 kg/ha respectively. The variety is characterized by strong and sturdy culm, 5-7 productive tillers, long and compact panicles and non-shattering grains. It is endowed with special attributes like easy threshability, synchronized maturity and non-lodging growth habit. The grains are bold and attractive brownish yellow in colour. The grains are nutritious with preferred grain qualities for cooking and value addition. Due to its high bulk density and milling out turn, it is preferred by consumers and entrepreneurs. The nutrient rich straw is palatable and highly suitable for cattle feeding. It is tolerant to drought during crop growth stage and has field tolerance to shoot fly and blast and rust diseases. In view of stable yield performance across seasons and locations and special attributes, it was released for cultivation in dry lands and hilly and tribal areas in Dharmapuri, Thiruvannamalai, Vellore, Salem, Namakkal, Villupuram, Virudhunagar and Krishnagiri districts of Tamil Nadu during 2020.

## **VBN 11 - A new high yielding and MYMV disease resistant blackgram variety**

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The high yielding blackgram variety VBN 11 (VBG 12-062) is a cross derivative of PU 31 x CO 6 and matures in 70 – 75 days was released by Tamil Nadu Agricultural University, Coimbatore during 2020. This variety was developed by National Pulses Research Institute, Vamban through pedigree method of breeding. It is suitable for cultivation under *kharif*, *rabi* and *summer* seasons of Tamil Nadu. The average yield of 899 kg/ha which is 14.8 and 11.8 per cent higher yield than the VBN 6 (783 kg/ha) and VBN 8 (804 kg/ha) respectively. Under irrigated condition, it recorded an average yield of 940 kg/ha. This was increased yield of 18.7 and 12.0 per cent over the two check varieties VBN 6 (792 kg/ha) and VBN 8 (839 kg/ha) respectively. Under rainfed condition, it is recorded 865 kg/ha with 11.4 and 11.6 per cent higher yielder than the two check varieties VBN 6 (776 kg/ha) and VBN 8 (775 kg/ha) respectively. The unique characteristic of the new variety VBN 11 includes determinate plant type, medium duration with synchronized maturity and complete resistance to Mungbean Yellow Mosaic Virus (MYMV) disease and moderately resistance to powdery mildew disease. It has protein content of 22.6% with good batter properties. The organoleptic parameters *viz.*, colour and appearance, texture, taste, flavour, and over all acceptability are better than check variety VBN 8. The culture has medium sized seed with 100 grain weight of 4.5 – 5.0 g. This variety was notified during 2020 (Gazette Notification No. : S.O. 3842(E) dated 7<sup>th</sup> October, 2020)

**Cotton CO17 (TCH 1819) - A Short duration, high yielding compact variety suitable for high density planting system**

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The cotton compact variety CO 17 (culture TCH 1819) is a short duration genotype (125-130 days) with synchronized boll maturity suitable for high density planting system (HDPS) was released by Tamil Nadu Agricultural University, Coimbatore during 2020. This variety was developed at Department of Cotton, TNAU, Coimbatore through hybridization involving Khandwa 2 and LH 2220 followed by pedigree breeding. The variety possesses zero monopodia with short sympodial length and is highly suited for high density planting system. It recorded an average seed cotton yield of 2361 kg/ha which is 18.9% increase over the check variety Suraj (National check entry identified for HDPS). CO 17 recorded seed cotton yield of 3427 kg/ha which was 21.7 % increase over Suraj and 29.0 % increase over MCU 7 under rice fallow condition. It recorded seed cotton yield of 2051 kg/ha which was 13.8 % increase over Suraj under summer irrigated conditions and also recorded 1604 kg/ha of seed cotton yield under winter rainfed which was 20.1 % increase over the check Suraj. This culture was also evaluated in All India Coordinated Cotton Improvement Project trials for two years during 2016-17 and 2017-18 across ten locations. It registered seed cotton yield of 1850 kg/ha which was 37.9 % increase over Suraj. CO 17 variety recorded Upper Half Mean Length (UHML) of 27 mm with bundle strength of 26.9 g/tex. It can spin upto 40's counts. This variety notified during 2020 (Gazette Notification No.: S.O. 3482 (E) dated. 7<sup>th</sup> October, 2020).

**Sugarcane CoC 13339 (C 29442) – A high yielding and high quality mid-late maturing variety with moderate resistance to red rot disease**

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A high cane yielding and mid-late maturing sugarcane variety CoC 13339 (Clone number C 29442) was released by Sugarcane Research Station, Tamil Nadu Agricultural University, Coimbatore during 2020. This variety was developed by clonal selection from general cross progenies of Co 86032. It is moderately resistant to red rot, smut and yellow leaf diseases and it is expected to augment the productivity in red rot prone regions of Tamil Nadu and Puducherry. It recorded an average cane yield of 141.81 t/ha which was 17.24 per cent yield increase, commercial cane sugar per cent (CCS%) of 12.86 which was 0.52 per cent increment and 18.24 t/ha of sugar yield which was 17.80 per cent increase over the check variety Co 86032. As a good ratooner, it recorded 138.96 t/ha and 17.88 t/ha of cane yield and sugar yield respectively which was 15.57 % and 16.05 % increase over the check variety Co 86032. This clone was also evaluated in All India Coordinated Research Project on Sugarcane for three years in East Coast Zone from 2015-16 to 2017-18 across five locations in Tamil Nadu, Andhra Pradesh and Odisha along with two zonal standards (Co 86249 and CoV 92102). It recorded a cane yield of 119.16 t/ha which was 14.18% higher than the best standard CoV 92102. Regarding the sugar yield, it recorded 15.26 t/ha which was 13.10% increase over the best standards CoV 92102 (13.10 t/ha). This variety is characterized by thick, tall, straight growing and attractive red colour cane at early stage with a good ratooning ability. It is a quick growing cane with cylindrical internodes and ovate shaped small size buds. It matures in 330-360 days. It is less susceptible to shoot borers. This variety was notified during 2020 (Gazette Notification No.: S.O. 3482 (E) dated. 7<sup>th</sup> October, 2020).