



Notification and germplasm registration

Bread wheat

Variety DBW 316 (Karan Prema)

A new high yielding bread wheat variety DBW 316 (Karan Prema) has been developed by the ICAR- Indian Institute of Wheat & Barley Research (IIWBR), Karnal. This variety was bred through modified pedigree bulk method and shuttle breeding from a cross, DBW 18 x DBW 66. The genotype DBW316 was evaluated in NIVT-3A multi-location trials conducted under All India Coordinated Research Project (AICRP) on wheat during 2019-20 and based upon significant superiority over the checks it was promoted to Advanced Varietal Trial (AVT) under irrigated late sown (IR-LS) condition trials of North-Eastern Plains Zone (NEPZ). It showed superiority for yield, quality and terminal heat tolerance in multilocation advanced varietal trials under AICRP wheat during 2020-21 and 2021-22, respectively. This variety has been released and notified by the Central Sub-Committee on Crop Standard Notification and Release of Varieties for Agricultural Crops, Govt. of India vide gazette notification number SO 1056(E) dated March 06, 2023 for commercial cultivation in NEPZ of India which covers Eastern Uttar Pradesh, Bihar, Jharkhand, Odhisa, West Bengal, Assam and Plains of North-Eastern States.

DBW 316 has shown superior yielding ability under terminal heat prone conditions at various locations of north-eastern India over three years of testing at multilocation as compared to the checks. This variety showed yield superiority over the checks, HD3118 (7.0%), HI1621 (3.2%), HI1563 (1.8%) and at par with DBW107. The yield potential of 68.0 q/ha with an average yield of 41.0 q/ha under late sown conditions of NEPZ has been recorded. However, in agronomic trials under late and very late sown conditions, DBW316 showed least reduction of 27.5% in yield, whereas the other varieties, namely, PBW833 (31.9%) PBW835 (38.3%), HI1563 (33.2%), HI1621 (34.3%), HD3118 (35.5%), and DBW107

(37.3%) displayed higher reduction. Its 1000 grain weight is highest (40.0 g) among all the test/check entries. in late sown varietal trials.

DBW 316 produce bold, amber coloured hard grains with high protein content (average 13.2 %). High protein content along with good level of Zn (average 38.1 ppm) and Fe (average 38.2 ppm) make this variety superior in nutritional quality in comparison to the checks. Besides, the proposed variety is suitable for multiple products as indicated by high bread loaf volume (593 ml), high bread-quality (score 7.7), chapatti quality (score 7.4), biscuit spread factor (score 7.7), wet gluten (26.6%), dry gluten (8.8%) and sedimentation value of 51 ml. Grain hardness score of DBW316 is 77.2, whereas, hectolitre weight is 74.0. It has desirable plant architecture with robust stem (average plant height 90 cm under late sown conditions) and medium maturity duration of 114 days in late sown conditions of NEPZ. Ear shape is tapering with intermediate density. The proposed variety DBW 316 has shown good level of resistance to all the three rusts (yellow, brown and black) of wheat. In this variety an unknown leaf rust resistance gene has been postulated conferring resistance against all leaf rust pathotypes in India. It is resistant to wheat blast and other foliar diseases. All these traits indicated suitability of DBW316 for higher productivity with high end use quality.

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Rice

Variety KKL (R) 2

KKL (R) 2 (KR 16024/IET 28791) is derived from the cross of ADT 46*3/Swarna Sub 1 through Marker Assisted BackCross strategy (MABC). Molecular markers closely linked to SUB 1 (QTL) were used to transfer target gene from donor into recipient line by retaining maximum portion of the recurrent parent genome. This Marker Assisted Selection (MAS) variety was developed at Department of Plant Breeding and Genetics, Pandit Jawaharlal Nehru College of Agriculture and Research Institute, Karaikal (PAJANCOA & RI, Karaikal) with the financial assistance of Department of Biotechnology, Govt. of India, New Delhi, through network project on "From QTL to variety: Marker Assisted Breeding of Abiotic Stress tolerant rice varieties with major QTLs for Drought, Submergence and salt tolerance" by introgressing SUB 1 QTL from Swarna Sub 1 into ADT 46. In the MABC breeding programme, foreground selection was done using three markers tightly linked to SUB1 QTL viz. Sub1 bc2 (6.38 Mb), ART 5 (6.50 Mb) and RM 8300 (6.60 Mb). Simultaneously, the recombinant selection using the markers viz., RM 23805, RM 23818 (at proximal end) and RM 23914, RM 23935 (at distal end) was done to minimize linkage drag. Recovery of recurrent parent genome (ADT 46) was assessed using 50K SNP chip analysis at Indian Council of Agriculture Research – National Institute of Plant Biotechnology, New Delhi and KKL (R) 2 was found to possess 92% of recurrent parent genome. The Near Isogenic Line (NIL) of ADT 46 harboring SUB1 QTL in BC3F3 generation along with the parents and check varieties FR 13A (tolerant) and IR 42 (susceptible) were screened in concrete submergence pond as per standard protocol of IRRI. This resulted in isolation of 10 submergence tolerant lines and three most promising ones were nominated for Multi Location Trials (MLT) through AICRIP (AVT-1 NIL Sub) in 2019.

KKL (R) 2 (IET 28791) was evaluated in submergence tank at three AICRIP centers viz. NRRRI Cuttack, RRS Maruteru and PAJANCOA Karaikal. In the trait verification trials (AVT-1 & 2 NIL Sub), the variety KKL (R) 2 showed yield advantage of 72.2 % and 97.3% over the recurrent parent ADT 46 under submergence condition in 2019 and 2020 respectively. During 2020, KKL (R) 2 performed better than recurrent parent ADT 46 with regard to survival percentage (64.8) under submergence condition (AVT-2 NIL Sub). In 2021, the performance of KKL (R) 2 was statistically on par with recurrent parent ADT 46 in Tamil Nadu (7540 Kg/ha) and in Zone VII (6851 kg/ha) under normal condition (AVT-2 IM). However, KKL (R) 2 yielded 4.2% higher than its recurrent

parent ADT 46 on numerical basis. This newly developed variety is similar to ADT 46 in all essential descriptors. However, KKL (R) 2 with a test weight of 28.2 g (high) differs with ADT 46 which is 25.8 g (Medium).

KKL (R) 2 is semi-dwarf stature (115 cm), maturing in 135 days with an average yield of 6.8t/ha, non-lodging and performed better than recurrent parent ADT 46 at recommended dose of nitrogen and increased dose of nitrogen as well. Grain quality parameters were found to be similar to its recurrent parent. It possesses long slender grain, with Head Rice Recovery (63.00 %), Alkali Spreading Value (7.0), High Amylose content (26.10) and lower Gel Consistency (28.5 mm). KKL (R) 2 was found to possess similar reaction against pest (moderately tolerant to leaf folder, brown plant hopper and white back plant hopper) and disease (moderately resistant to leaf blast, brown spot) as that of its recurrent parent under both naturally and artificially screening experiments (AICRIP and NSN1 trials). Considering the advantages such as on par grain yield and quality traits, tolerant against flash flooding/submergence up to 2 weeks, KKL (R) 2 has been identified for Tamil Nadu and Puducherry in Zone VII. During Varietal Identification Committee (VIC) meeting (Proceedings of 57th Annual Rice Research Group Meeting 2020) held on 27.04.2022.

Nucleus seeds of KKL (R) 2 has been submitted to NBPGRI; New Delhi and assigned the National Identity Number of IC 643921. Subsequently this variety KKL (R) 2 was released by the Central Sub-Committee on Crop Standards Notification and Release of Varieties for Agricultural Crops (CVRC) and notified by Gazette notification Part II- Sec.3 (ii) No. 3891, S.O. No. 4065(E) dated 31.08.2022. Therefore, the release of this MAS variety KKL (R) 2 will ensure sustained rice production in the Cauvery delta zone comprising the states of Tamil Nadu and Puducherry.

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Barley

INGR22124 (IC0632077)

Barley is an important coarse cereal utilized for food, feed and malting purposes. The high nutritional properties of barley are well known since ancient times and it was the staple food in dry, marginal and hilly areas. In general, yellow coloured barley grains are primarily used but the coloured grains like black, purple, blue are rich in phenolic acids and anthocyanin. These flavonoid compounds are important for free radical scavenging capacity and thereby making coloured barley a popular healthy food. The black colour grains are attributed with the accumulation of phytomelanins in the lemma and pericarp, whereas, the yellow barley is due to the accumulation of proanthocyanidins in the testa layer. In addition to the dietary benefits, anthocyanin accumulation in grains has been reported to play role against environmental stresses.

INGR22124 (DWRB189: BCU2336) is a hulled six-row barley genotype, which has unique black grain colour

grains with high anti-oxidant activity. The genotype was registered for high anti-oxidant activity and unique black colour grains with ICAR-National Bureau of Plant Genetic Resources. During 2018-19, INGR22124 showed the highest total phenolic content of 1913 µgGAE/g followed by the registered genetic stock Kasota (1719 µgGAE/g) and the mega barley variety DWRB137 (1341 µgGAE/g). During 2021-22 again the genotype, INGR22124 confirmed advantage of 90.8 and 155.5 % over the genotypes Kasota and DWRB137. The genotype INGR22124 also exhibited very high advantage for anti-oxidant activity over the two-row barley checks, DWRB91 and DWRB92 and six-rowed barley checks, BH902 and BH946. The genotype DWRB189 is unique for black grain colour with high anti-oxidant activity required for free radical scavenging capacity and boosting immunity.

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Maize

Baby corn hybrid Punjab Baby Corn 1

Baby corn is young, fresh, finger like green ear harvested before fertilization just at the silk emergence. Punjab Agricultural University (PAU), Ludhiana has developed a new cytoplasmic male sterility (CMS) based baby corn hybrid, Punjab Baby Corn 1 and has been approved by the State Varietal Approval Committee (SVAC) for general cultivation during *Kharif* season in Punjab state. This hybrid has been released and notified by the Central Sub-Committee on Crops Standards, Notification and Release of Varieties for Agricultural Crops, Govt. of India, New Delhi vide notification number SO.1556(E) dated March 06, 2023 for commercial cultivation in Punjab state.

Based on experimental data in 16 trials conducted by different research stations and KVKs of Punjab, this new hybrid exhibited equivalent performance for both yield (1.93 % yield superiority) and quality in comparison to prevalent private sector baby corn hybrid, G 5417. Similar to G 5417, Punjab Baby Corn 1 hybrid is also based on CMS, which implies that hybrid does not bear viable pollen grains. For baby corn production, as pollination leads to seed set and affects the baby corn quality, there is a need of removing emerging tassels to avoid pollen shed before fertilization. Punjab Baby Corn 1 hybrid is male sterile and there is no need to remove the tassels (detasseling) to get good quality baby corn. This saves time and labour cost incurred to remove the tassels at the time of flowering. This is the first

CMS based maize hybrid developed and recommended by PAU. The earlier recommended PAU hybrid Parkash was lower in baby corn yield and non-CMS. This hybrid will be ready for first picking (harvest of baby ears) in 52 days after sowing and 2 to 3 pickings can be taken within a span of 10-12 days. Average baby corn yield (without husk) of this hybrid is 21 q/ha. At harvest, the average baby corn length is 8 cm with average 1.2 cm girth which meet the prescribed International standards. In All India Coordinated Research Project trials this hybrid yielded 16.83 q/ha baby corn as compared to 16.59 q/ha of check VL Baby Corn 2. Total sugar content is 1.86% as compared to 1.79% and 1.80% of Parkash and G 5417, respectively.

The hybrid Baby Corn 1 gave an average green fodder yield of 321.8 q/ha after the picking of ears. Stalks of Punjab Baby Corn 1 having 8 per cent crude protein content and 49.5 per cent *in vitro* dry matter digestibility (IVDMD), can be effectively used for green fodder. The use of baby corn crop after picking as source of fresh nutritious fodder will not only support household dairy sector but also generate additional income for the growers. It has fodder yield superiority of 5.09 % and 7.76% over hybrids G 5417 and Parkash, respectively and showed moderate resistance to maydis leaf blight and fall army worm incidence.

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Oat

Variety HFO 707

A new multi-cut fodder oat (*Avena sativa* L.) variety, HFO 707 was developed by CCS Haryana Agricultural University, Hisar and released at the national level for Uttarakhand, Punjab, Haryana and Rajasthan states in North West zone of India. It is derived from the cross, JHO 822 x NGB 7021 followed by pedigree method of selection. Initially, it was evaluated under station trials i.e. Progeny Row Trial (2014-15), Small Scale Trial (2015-16) and Large Scale Trial (2016-17 and 2017-18) at the Research Area of Forage Section, Department of Genetics and Plant Breeding, CCS Haryana Agricultural University, Hisar. Later, it was tested for timely sown, normal fertility and irrigated conditions under All India Coordinated Research Project on Forage Crops & Utilization (AICRP on FC&U) in Initial Varietal Trial Oat-Multi-Cut (2018-19), Advanced Varietal Trial I Oat- Multi-Cut (2019-20) and Advanced Varietal Trial II Oat-Multi-Cut & Seed (2020-21). The overall performance at national level for three years showed its superiority over the checks and qualifying varieties for green fodder yield (q/ha), dry matter yield (q/ha), production efficiency (q/ha/day) and crude protein yield (q/ha). Based on the yield and other ancillary data, the Varietal Identification Committee of AICRP on Forage Crops and Utilization identified this variety for release in the North West zone of India on September 20, 2021. Subsequently, it was released and notified by the Central Sub-Committee on Crop Standards, Notification and Release of Varieties of Agri-Horticultural Crops for timely sown, normal fertility and irrigated conditions of North West zone of India. The Gazette notification number of HFO 707 is S.O. 4065(E) dated 31st August, 2022.

It is a tall (120.0-127.8 cm) variety with average plant height of 124.0 cm producing medium size seed (3.5 g/100

seed). It is also good in terms of nutritional quality. Green fodder is harvested between 60-70 days for first cut and at 50% flowering stage for second cut. The mean performance over three years in AICRP (FC&U) showed superiority of the variety HFO 707 over the national checks UPO 212 (12.2%) and RO 19 (2.8%) for green fodder yield (q/ha). It also showed superiority over the national checks, UPO 212 (11.2%) and RO 19 (6.8%) for dry matter yield (q/ha). In terms of per day productivity of GFY (q/ha/day), the variety HFO 707 showed superiority over the national check UPO 212 (9.72%) and qualifying variety OL 1882 (4.73%). For the per day productivity of DMY (q/ha/day); it exhibited superiority over the national checks UPO 212 (9.43%) and RO 19 (4.5%). This variety is a good seed yielder giving 23.8 q/ha seed yield which is at par with the national check, RO 19 (23.9 q/ha) and 6.73% superior than UPO 212 (22.3 q/ha). It showed superiority for crude protein yield (q/ha) i.e. 9.0 and 4.3% gain over the national checks, UPO 212 and RO 19, respectively. This is almost at par with the national checks for crude protein (%), Acid Detergent Fibre (ADF %), Neutral Detergent Fibre (NDF %) and in vitro dry matter digestibility (IVDMD %).

HFO 707 shows good tillering and regeneration potential and thus making it suitable for multi-cut system. It is superior to both the national checks, UPO 212 and RO 19 in fodder yield and nutritional quality. This variety is moderately resistant to *Helminthosporium* leaf blight. It is being conserved at the National Bureau of Plant Genetic Resources (NBPGR), New Delhi with IC No. 641846.

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Cotton

Variety Vaidehi-1 (CICR- H NC Cotton 53) Naturally Colour Cotton

Cotton (*Gossypium* spp.) is an immensely important commercial crop of India grown for its fibre, feed, oil and fuel wood. Upland cotton (*G. hirsutum*) is predominantly cultivated species in India and the world. Cotton is valued for its fibre which is white in colour (so referred as white gold). The textile industries use different synthetic dyes or chemicals to achieve various colour in fabric. The naturally coloured cotton (NCC) is a type of cotton that grows in shades of green, brown, and other earthy tones without the need for chemical dyes or genetic modification. NCC is

the result of a genetic variation affecting the pigmentation of the cotton fibers. This type of cotton is considered environmental-friendly than conventionally grown cotton and it also requires input (water and agro-chemicals) demanding, making it a more sustainable alternative. NCC is used in variety of products, including clothing, towels, bedding, and other textile goods and thus becoming more popular in the fashion industry, as a natural and sustainable alternative to conventional cotton.

Naturally coloured cotton variety Vaidehi-1 has been developed by the ICAR-Central Institute for Cotton Research (CICR), Nagpur and is released through ICAR-AICRP on Cotton for commercial cultivation in the rainfed conditions of southern cotton growing zone of India comprising the

states of Telangana, Andhra Pradesh, Karnataka and Tamil Nadu. This new variety, Vaidehi-1 (a.k.a. ICAR-CICR 16301 DB or CICR-H NC Cotton 53) is the first dark brown linted NCC variety of upland cotton (*G. hirsutum*) with stable colour derived from wild species of *Gossypium*. The variety is a multi-species introgressed reverted tetraploid genotype derived from hexaploid progenies of the cross between *Gossypium hirsutum*, *G. raimondii*, *G. barbadense* and *G. thurberi*. This variety was identified for release in the 87th meeting of Central Sub-Committee on Crop Standards, Notification and Release of Varieties for Agricultural Crops held on 22nd September and 18th October, vide notification No. S.O. 8(E) dated 24th December 2021 (S. No. 275).

Based on the superior performance in initial trials during 2017-18, 2018-19 it was entered in advanced varietal trials. During the AICRP trials, it recorded an average yield of 1495 kg/ha with a potential yield of 2723 kg/ha recorded at Nandyal in Advanced Evaluation Trial II during 2019-20. During the trials, the variety was compared with the white linted genotypes which are genetically endowed with high yield potential and better fibre quality. This new variety has shown 11.73% yield superiority over zonal check (white linted). It has recorded an average boll weight of 3.73g with an average of ginning outturn of 35.0%. This variety has fibre length of 23.8mm, fibre strength of 25.1g/tex and micronaire of 4.1 µg/in indicating good spinnability. The agronomy trials conducted at Nandyal and Dharwad during 2020-21 has revealed that a spacing of 60 x 30 cm is ideal for this variety indicating its amenability to high density planting. This variety is suitable for sowing from June – July in rainfed conditions of South Zone on medium fertile soil with a seed rate of 2.0 - 2.5 kg per acre with 75x30 cm or 60x30 cm spacing. The height of the variety may reach up to 130-140cm. It matures in 160-165 days, responsive to fertilizers, and moderately resistant to lodging

and shattering. It showed moderate tolerance to sucking pests, *Corynespora* leaf spot, rust and *Alternaria* leaf spot. This is the first *G. hirsutum* based inter-specific NCC variety released for commercial cultivation in the rainfed tracts of South Zone.

There is a general concern that NCC could contaminate white cotton. Growing of NCC and white cotton in close proximity may facilitate the chances of contamination of white linted genotypes with coloured cotton and vice-versa, to an extent of 4-5%. With the existing scenario of 95% area under Bt-hybrid cotton in India, the coloured cotton varieties can now be cultivated in close proximity to the hybrids, since the seeds from the hybrid cotton fields are not used for sowing. Thus, the possibility of genetic contamination of white cotton is no longer a concern. Exploring the genetic mechanism of cleistogamy in NCC can also address the cross-contamination issues, when grown in near vicinity of white linted cotton. The research efforts in this direction are underway. With increased demand for NCC, upcoming new brands and government efforts to streamline the cotton value line for eco-friendly and sustainable textile production, this variety (Vaidehi-1) can be valuable and beneficial for both cotton farmers and industry.

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Tossa jute (*Corchorus olitorius* L.)

Variety JROBA 3 (Mukunda)

In India, tossa jute (*Corchorus olitorius* L.) is widely cultivated in its niche areas owing to its high fibre yield coupled with superior fibre quality in terms of less root content and stronger fibre. JROBA 3 is a high yielding tossa jute variety developed at ICAR-Central Research Institute for Jute and Allied Fibres, Barrackpore, Kolkata and recommended for release by the Central Sub-committee on Crop Standard, Notification & Release of Varieties for commercial cultivation in entire tossa jute growing states in the country and notified vide the Gazette of India notification No. S.O. 1056(E), dated 06th March 2023. This is the first tossa jute variety in the country which has been developed through pedigree

method of breeding from an inter-specific cross OIJ-248 (*C. olitorius*) x WCIN-402 (*C. aestuans*). The selection was made for higher fibre yield coupled with pre-mature flowering and stem rot resistance. It is mainly suitable for mid and highland rainfed agro-ecological conditions of the country especially in tossa jute growing region of West Bengal, Assam, Odisha and Bihar for early sowing i.e., 1st week of March to 2nd week of April owing to its premature flowering resistance. The average height of this variety is 370-390 cm with green stem and ovate lanceolate leaf. Fibre crop matures in 120 days in normal sowing but seed crops mature in between 135-150 days, if sown in July-August.

Variety JROBA 3 excelled fibre yield amongst all the elite lines evaluated in station trial during 2016 and therefore subjected to multi-location yield evaluation trials during

2017-2021 under All India Network Project on Jute and Allied Fibres, Barrackpore. Multi-location trials were conducted in seven locations viz. Coochbehar, Kalyani, Barrackpore, Katihar, Kendrapara, Nagaon and Rahuri. In IVT, variety JROBA 3 topped among all the test entries with average fibre yield of 35.09 q/ha across locations. In Advance Varietal Trial –I and II, it ranked 1st with average fibre yield of 32.38 q/ha and 28.48 q/ha, respectively. It also out-yielded (31.89 q/ha) national check varieties JRO 204 and JRO 524 by 12.01 % and 9.78 %, respectively, in Adaptive trials conducted in the farmers' fields of tossa jute growing states. In multi-location yield evaluation trials during 2017-2021, variety JROBA 3 out yielded national check varieties JRO 204 and JRO 524 by 9-10% with average fibre yield of 31.84 q/ha and potential fibre yield of 40.95 q/ha. It is highly resistant to stem rot (36-53%) and root rot (51-53%) diseases than check varieties JRO 204 and JRO 524. JROBA-3 also exhibits high tolerance to stem weevil, semilooper, Bihar hairy caterpillar and yellow mite than both the check varieties. The quality of fibre of this variety is either better or at par with both the check varieties

in terms of fineness, strength and root content and defects.

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White jute

Variety JRCP 5 (Pankaj)

White jute (*Corchorus capsularis* L.) variety JRCP 5 a purple red stem with high yield has been developed by the ICAR-Central Research Institute for Jute and Allied Fibres, Barrackpore, Kolkata and released for entire white jute growing region of the county by the Central Sub-committee on Crop Standard Notification and Release of variety vide the Gazette of India notification no. S.O. 1056(E), dated 6th March, 2023. It has been developed by pedigree method of breeding from a cross between advanced breeding line CIM-036 and popular cultivar JRC 517 followed by backcrossing with JRC 517 and subsequent selection from segregating populations. This variety is specifically adapted to *Capsularis* jute growing belt of the country in rainfed/irrigated conditions of West Bengal, Odisha, Bihar, Uttar Pradesh, Tripura and Assam which can also withstand waterlogging up to some extent. Plant height of this variety ranges from 350–400 cm with cylindrical, smooth, purplish-red stem with intensity more at the top. Leaf colour is deep green with purplish-red pigmentation at leaf base; ovate-lanceolate, serrated leaf margin with pigmented tip; petiole and stipule tips are also purplish-red. Fibre crop matures within 110-120 days of sowing (March-April sowing) whereas seed crop matures at 110-130 days when sown in July-August. The average fibre yield of variety JRCP 5 is 28.50 q/ha with a potential yield of 34–37 q/ha in multi-location varietal trials under All India Network Project on Jute and Allied Fibres.

This variety had been evaluated in multi-location trials

of all India Network Project on Jute and Allied Fibres in IVTs, AVT-I, AVT-II and Adaptive trials during 2018 to 2021 across six locations, namely, Kalyani, Barrackpore, Coochbehar (West Bengal), Kendrapara (Odisha), Katihar (Bihar) and Nagaon (Assam). Initial evaluation trials were conducted in five locations in which variety JRCP 5 topped all the entries and outperformed check varieties JRC 698 and JRC 517 by 9.1% and 6.4%, respectively with an average fibre yield of 32.28 q/ha. In Advanced Varietal Trials-I, variety JRCP5 ranked 1st with an average yield of 28.05 q/ha. In AVT-II also JRCP-5 significantly outperformed check variety JRC 698 by 7% with average yield of 30.42 q/ha which was at par with popular variety JRC 517 for fibre yield. Variety JRCP-5 has outperformed check varieties JRC 698 and JRC 517 in adaptive trials at farmers' field as well as in fertilizer management trials under different fertilizer doses in three states with 9.4-14.2% yield advantage, which depicting its high yield and wide adaptability to different agro-ecological and soil fertility conditions.

Variety JRCP 5 had shown very less incidence of stem rot, root rot and yellow mosaic diseases in multi-location trials, indicates its field resistance against major diseases of jute. It also exhibits fewer incidences of major insects like, yellow mite, semi-looper and stem weevil than cultivated varieties jute JRC 517 and JRC 698. Fibre quality of JRCP 5 is also superior in terms of 25-27% less root content in fibre with finer and stronger fibre than the cultivated varieties JRC 517 and JRC 698. Variety JRCP-5 has much higher relative stem anthocyanin (1.376/g fresh bark weight) and flavonoid contents than other white jute varieties which not

only provide it stress tolerance but also makes it suitable for vegetable purposes. The high anthocyanin might be responsible for its higher disease and insect-pest resistance and may contribute to other abiotic stresses, particularly heat and UV-rays. Moreover, its high leaf flavonoid content makes it desirable as flavonoid-rich leafy vegetables.



HS Mesta (Roselle)

Variety HSLC 1

HSLC1 is a first variety of HS mesta (roselle) which is developed by ICAR-Central Research Institute for Jute and Allied Fibres and released by the CSCSN&RV exclusive for calyx production as an edible nutritional-food crop variety vide the Gazette of India notification no. S.O. 1056(E), dated 6th March, 2023. The plant architecture of this variety is entirely different from that of fiber type roselle varieties. Roselle variety HSLC1 is mainly suitable for mid and high land soils under rainfed agro-ecological conditions of entire mesta growing region of the country. It is adapted to rainfed mesta growing belt particularly, in Andhra Pradesh, Telangana, Tamil Nadu, Maharashtra, Bihar, Odisha, West Bengal and North Eastern states. Sowing of this variety for calyx production can be taken-up during July to August and picking of fresh calyces start from November - December and usually 4-5 pickings are made at an interval of 10 days. However, the calyx crop matures in about 120-130 days whereas seed crop matures after 160-175 days of sowing. The average calyx yield of variety HSLC-1 is 42.60 q/ha with potential yield of 61.3 q/ha.

Stem of this variety is cylindrical, smooth and deep red in colour, leaves are partially lobed, green is colour at early stage which turns into reddish on maturity or develops reddish patches throughout the leaf with red veins, leaf stipule and petiole are also red in colour. Fruit calyx and epicalyx are red in colour, thick, smooth and average length is 5.2 cm with fruit diameter 3.4 cm. Calyces of this variety are very rich in minerals like K, Ca, Mg, Fe and vitamins like C, B1, B3, B5. The relative mineral contents in descending order of abundance are K > Ca > Mg > P > Na > Fe > Zn > Mn > Cu. Similarly, descending order of abundance of vitamins are C > B5 > B3 > B6 > B1 > B2 > B9 > A. It can supply significant amount (06 to 15%) of recommended daily allowance of mineral and vitamins of an adult.

Roselle variety HSLC-1 has been developed through pure line selection from an advanced breeding line Long Calyx-H. The selection was made for long, fleshy and attractively colored calyx, high branching plant type and high calyx yielder. Subsequently, this variety had been tested in multi-location evaluation trials of AINPJAF during 2018 to 2021. Initial Evaluation Trials (IVTs) were conducted in three

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locations viz., Aduthurai, Amadalavalasa and Rahuri and this variety ranked first amongst all test entries with regards to calyx yield across all the locations. Variety HSLC-1 outyielded (43.86 q/ha) both the check varieties HS 4288 and AMV 5 which are widely cultivated varieties of roselle for fibre production whose calyces are also edible. AVT-I and AVT-II trials conducted 2019 and 2020 over three locations viz., Aduthurai, Amadalavalasa, and Rahuri and variety HSLC-1 again out-yielded (42.09 q/ha) both the check varieties HS 4288 and AMV 5 by 58.59% and 91.93%, respectively. In fertilizer management trials also variety HSLC-1 (38.80 q/ha) out-yielded the national check varieties HS 4288 and AMV 5 by 54.95 and 47.19%, respectively. Considering the high calyx yield and nutritional value and having the ability to contribute to nutritional security of the country, variety HSLC 1 was identified by the Variety Identification Committee Meeting chaired by the DDG (CS) during the 33rd Annual Workshop of AINP on Jute and Allied Fibres held during 22-24 February, 2022 at ICAR-CRIJAF, Barrackpore, Kolkata, West Bengal.

The calyces of variety HSLC 1 are rich in minerals like potassium (238.4 mg/100g), calcium (142.84 mg/100g), Magnesium (44.79mg/100g), phosphorus (35.34 mg/100g), Iron (3.93 mg/100g) etc. and vitamins like vitamin C (5.49 mcg/100g), vitamin B1 (0.29 mcg/100g), vitamin B3 (0.42 mcg/100g), vitamin B5 (0.85 mcg/100g) and therefore has immense potential to supply significant amount of recommended daily allowance (RDA) minerals and vitamins to an adult.

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HC Mesta (Kenaf)

Variety JBMP 5 (Vibhav)

A new high-yielding mesta/kenaf variety JBMP 5 has been released and notified by the Central Sub-committee on Crop Standard, Notification and Release of Varieties vide the Gazette of India notification no. S.O. 1056(E), dated 6th March 2023. This variety is developed by ICAR-Central Research Institute for Jute and Allied Fibres, Barrackpore through progeny selection from a cross, KIJ-31 × AMC 108 which is adapted to rainfed mesta growing belt of India for cultivation from April to May sowing. It can also thrive well on delayed monsoon till the 1st week of June sowing. It is mainly suitable for mid and high-land soils under the country's rainfed agro-ecosystem of West Bengal, Bihar, Andhra Pradesh, Odisha, Maharashtra and North-Eastern states. The plant height of this variety ranged from 3.60 to 3.85 meters depending upon the soil, climate, sowing time and crop management practices. The variety JBMP 5 (Vibhav) is characterized by coppery red stem, fewer bristles and green, broad and lobbed (5-7 lobes) leaves. It has recorded an average fibre yield 28.91 q/ha and a potential yield of 38-41 q/ha in 125-135 days of fibre crop duration. The seed crop of this variety matures in between 160-170 days.

The mesta variety JBMP 5 was found promising for fibre yield, fibre quality and reaction to disease and pests among 18 elite lines evaluated in a station trial in 2016. This variety was further evaluated in multi-location yield evaluation trials of all India Network Project on Jute and Allied Fibres (AINPJAF) in IET, AVT-I, AVT-II and Adaptive trials from 2017 to 2021 across six locations viz., Barrackpore, Coochbehar (West Bengal), Kendrapara (Odisha), Amadalavalasa (Andhra Pradesh), Aduthurai (Tamil Nadu) and Rahuri (Maharashtra). In Initial Evaluation Trials, this variety ranked first across 4 locations with fibre yield superiority of 24.84% and 4.06%, respectively, over the national check varieties, HC 583 and

AMC 108. In Advanced Varietal Trials also variety JMBP 5 showed 14-15% higher fibre yield than both check varieties AMC 108 and HC 583. In fertilizer schedule trials, this variety recorded the highest fibre yield of 32.00 q/ha with 100:21.8:41.7 kg/ha NPK, which was 17% to 21% higher than national check varieties AMC 108 and HC 583.

The kenaf variety JBMP 5 also exhibited less incidence of foot & stem rot disease compared to national check varieties AMC 108 and HC 583, as well as less infestation of whitefly, an important insect responsible for YVM disease of mesta. Fewer infestation of white fly (0.83%) in this variety has resulted in resistance to yellow vein mosaic (YVM) disease. It also showed less infestation to semi-looper and mesta mealy bug respectively, than the national check varieties HC 583 and AMC 108.

The kenaf variety JBMP 5 is characterized by 5.4% finer fibre and 4.8-12.4% higher fibre strength over check varieties AMC 108 and HC 583. Also, it possesses 3.57%-5.0% less root content and 0.1 – 0.3% less defect than the same check varieties. Overall, the fibre quality of JBMP 5 was M-3+90% with 15 and 12 scores higher than HC 583 and AMC 108 which makes it most suitable for the production of high-value jute diversified products

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Guar

Karan guar 14 (RGr 18-1: A new high-yielding variety of Guar)

Guar [*Cyamopsis tetragonoloba* (L.) Taubert] is an important annual legume that belongs to the family 'Fabaceae.' It is mainly cultivated under resource-poor conditions in arid and semi-arid regions. It is used as animal feed and fodder, green manure and for extraction of gum for various industrial uses and hence it is being considered as cash crop. Thus, there is a dire need to upgrade guar cultivation, mainly for seed (gum) purposes. Efforts are being made toward the development of guar varieties with high grain yield, early maturity, resistance to major biotic factors, and high gum content and viscosity. The variety Karan Guar 14 (RGr 18-1) was developed

by crossing between the genotypes, RGC 1038 and RGC 1017 following the pedigree breeding method of selection. The bulk seed of promising line obtained from F7 generation was evaluated in station trials at Rajasthan Agricultural Research Institute, Durgapura (Jaipur) during the rainy season of 2016 and 2017 for required traits. The entry was assessed for yield and other desirable traits in an initial varietal trial (IVT) at the all-India level in seven environments during kharif 2018 and based on its superior performance it was evaluated in advanced varietal trials (AVTs) continuously for three rainy seasons (2019, 2020, and 2021) at 7, 6, and 6 locations, respectively. On average, RGr 18-1 gave higher grain yield (1222 kg/ha) with +16.7 % advantage over check RGC 1066 (1047 kg/ha); by 14.5 % over checks, HG 2-20 (1067 kg/ha) and 14.3 % over RGC 1033 (1069 kg/ha). The samples

of RGr 18-1 and check cultivars were evaluated for quality parameters like per cent carbohydrate, endosperm, gum content, and viscosity profile. It recorded good quality traits like protein content (27.97%), carbohydrate content (42.90%), endosperm content (32.26 %) and gum content (29.00%) with a high viscosity profile (3412 cp). The high viscosity profile indicated better gum quality for the international market. The variety, RGr 18-1 has a high degree of resistance to key diseases like bacterial leaf blight (BLB), root rot, and Alternaria blight. Moreover, a lower incidence of whitefly, leaf hopper and aphid was also recorded as compared to the check varieties. The plants of RGr 18-1 are erect in habit, pubescent, and of the intermediate, branched type, mature in 90–95 days (medium maturity). The flowers are pink, and it has a tripinnate leaf with a serrated margin, a straight and hairy pod, and a flat and round seed that ranges in color from light grey to black brown. Seeds are bold and medium in size, weighing 2.74-3.34 grams per 100 seeds. The variety RGr 18-1 (Karan Guar 14) was identified by the Varietal Identification

Committee, AINP on Arid Legumes in its meeting held on May 9th, 2022 at CSK HPKV Palampur, Himachal Pradesh and subsequently, released and notified by the Central Sub-Committee on Crop Standards, Notification and Release of Varieties for Agricultural Crops in its 89th meeting held on 24th October 2022 vide Notification No. S.O. No. 1056 (E), dated 6th March 2023 for commercial cultivation under normal sown conditions of Rajasthan, Gujarat, Haryana and Maharashtra. The Rajasthan Agricultural Research Institute (SKN Agricultural University), Durgapura, Jaipur, Rajasthan, India is the maintainer of this cultivar and the producer of the nucleus and breeder seeds for further use.

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Taramira

Variety RTM-1624 (Krishna Tara)

Variety, RTM-1624 of Taramira (*Eruca sativa* L.) has been developed recently at Sri Karan Narendra Agriculture University, Jobner, Rajasthan through hybridization between RTM-1351 and T-27 followed by recurrent selection. The female parent, RTM-1351 is a high yielding released variety of S.K.N. College of Agriculture, Jobner and male parent T-27 was developed at CCSHAU, Hissar and notified for cultivation throughout the country.

The RTM-1624 is an early maturing variety having medium plant height (89-107 cm) with profuse branching. It is non-pigmented at early seedling growth stage and lush green at flowering and fruiting stage. The stem is cylindrical, green, non-pigmented at the base, slightly pubescent having alternate bearing of flowers. Leaves are lyrate pinnatifid, slightly pubescent on lower epidermis and glabrous on upper epidermis. The flower consists of light green coloured calyx and creamish yellow, non-hairy corolla. Siliqua is cylindrical, two valved with prominent flat apical beak, dark green and non-pubescent. It possesses good quality bold sized seed with yellowish shiny colour. It performs well on loamy sand to sandy loam soils provided there is sufficient conserved moisture in the soil for proper germination and establishment of the crop.

The proposed variety RTM-1624 has wider adaptability and stability under rainfed conditions as it has shown consistent superiority for seed yield and oil yield in Zone II, III and IV of India from 2017-18 to 2020-21. It has given 18.8, 19.4 and 18.5 per cent higher seed yield over RTM-314, RTM-1351 and T-27, respectively in 19 environments across the Zones, II, III and IV of India. Consistent performance in frequency of

the top 5 non-significant group was found higher in RTM-1624 (17/19) than checks RTM-314 (15/19), RTM-1351 (13/19) and T-27 (17/19), respectively in 19 environments across the Zone II, III and IV of India during four years evaluation. The RTM-1624 has shown 6 and 6.2 per cent increase in oil yield over, RTM-1351 and T-27, respectively in 10 environments across the Zone II, III and IV of India. RTM-1624 has highest oil yield (561 kg/ha) over check varieties RTM-1351 (530 Kg/ha) and T-27 (530 Kg/ha), respectively in 10 environments across the Zone II, III and IV of India. Plant pathological trials indicated that RTM-1624 is resistant to White Rust and moderately resistant to Staghead and Downy Mildew diseases. It also has very low aphid infestation.

The variety RTM-1624 has been identified by the Variety Identification Committee (VIC), during 28th Workshop of Annual Group Meeting of Rapeseed-Mustard Research Workers Online during 7-8 August, 2021. Subsequently, based on the approval of Varietal Identification Committee, this variety was released and notified by the Central Sub-Committee on Crop Standards, Notification and Release of Varieties for Agricultural Crops (CVRC) in its 88th meeting held on 17th June, 2022 vide Notification No. 3-83/2022-SD. IV, dated 27th July, 2022 for commercial cultivation in all the Taramira growing areas of the country under irrigated conditions comprising Rajasthan, Haryana, Punjab, Madhya Pradesh, Gujarat, Delhi, Uttarakhand and Maharashtra. As demand for Taramira for industrial purpose is increasing in domestic and global market, the promotion of this variety will further increase Taramira production in India.

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Bread wheat

Variety INGR22118 (IC640204)

Cereal rusts are devastating diseases, which can cause marked yield losses and lead to the poor grain quality. Yellow, brown and black rusts are economically important diseases in wheat. Different races for these rusts are prevalent and further interaction of temperature and other weather parameters led to the infection severity. The bread wheat genotype, INGR22118 (IC640204: RLW02) was selected from FITIS and was registered with ICAR-National Bureau of Plant Genetic Resources as genetic stock for stripe and leaf rust resistance. INGR22118 was evaluated in Initial Plant Pathological Screening Nursery (IPPSN), 2021-22 against rust diseases following standard All India Co-ordinated Research Project methods. The IPPSN was conducted at eight different centres for screening against each of the three rusts, namely, Malan, Dhaulakuan, Jammu, Gurdaspur, Ludhiana, Karnal, Hisar and Durgapura for stripe rust, Ludhiana, Karnal, Delhi, Durgapura, Ayodhya, Kanpur, Sabour and Coochbehar) for leaf rust (North India) and, Vijapur, Indore, Powarkheda, Niphad, Pune, Mahabaleshwar,

Dharwad and Wellington for leaf rust (South India) and stem rust. INGR22118 showed moderate degree of resistance for stripe rust (ACI=3.9), leaf rusts-north (ACI=0), leaf rust-south (ACI=2.0) under field conditions. IC640204 also confirmed seedling resistance against all the races of stripe rust and stem rust in SRT analysis conducted at ICAR-Indian Institute of Wheat & Barley Research, Karnal-132001, Haryana, India Regional Station, Flowerdale, Shimla, Himachal Pradesh. INGR22118 can be gainfully utilized in wheat breeding programmes for incorporating rust resistance.

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