



**ICRISAT**  
**Public Awareness Series**

# **Crop Improvement in India: ICRISAT Cultivars**

**(Sorghum, Pearl Millet, Chickpea,  
Pigeonpea, and Groundnut)**



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Patancheru, Andhra Pradesh 502 324, India**

1990

This list identifies improved varieties, hybrids, and lines available in late 1990 by their designations commonly used in India (indicated in bold type), and gives synonyms in parentheses.

## **Sorghum (Jowar)/*Sorghum bicolor***

### **CSV 11 (ICSV 1; SPV 351)**

Released in 1984 for cultivation in the rainy season (kharif) throughout India. The cultivar is of medium height, medium maturing (110 days), and is resistant to several leaf diseases. The grain is medium sized, pearly white, and has good food quality. An average grain yield of up to 3.3 t/ha was achieved in the All India Coordinated Sorghum Improvement Project (AICSIP) trials.

### **CSH 11 (ICSH 153; SPH 221)**

Released in 1986 to be grown during the rainy season (kharif) throughout India. The hybrid is of medium height, matures in about 110 days, and has semicompact panicles with good exertion. The grain is pearly white with an average yield of 4.2 t/ha, compared to the best commercial hybrid CSH 9 which yields 4.0 t/ha in AICSIP trials.

### **CSV 13 (ICSV 112; SPV 475)**

A rainy-season (kharif) variety that matures in about 115 days. It has given consistently high grain yields of over 3.4 t/ha in the AICSIP Advanced Yield Trials from 1982 to 1985. Released in 1988 for cultivation in the rainy season (kharif) throughout India.

### **SAR 1 (ICSV 145; SPV 694)**

A variety released in 1988 for its resistance to the witchweed *Striga asiatica*. In the AICSIP trials in *Striga-infested* fields, it yielded on average 2.9 t/ha grain from 1982 to 1986. It has been recom-

mended for cultivation in *Striga*-endemic sorghum-growing areas of India.

**ICSV 197**

**(IPM 11344; SPV 692)**

A variety registered for its resistance to midge. It is a tall dual-type (grain/fodder) variety and yields around 2.8 t/ha grain.

## **Pearl Millet (Bajra)/*Pennisetum glaucum***

**WC-C75**

**(ICMV 1)**

Released in 1982 for cultivation in all pearl-millet growing areas of India. By 1986 it occupied the largest area under a single pearl millet cultivar in the country. It has excellent resistance to downy mildew, and is not normally susceptible to ergot or smut diseases. It matures in 85-90 days. In 7 years of testing in the coordinated trials, its grain yield (1.9 t/ha) was equal to that of hybrid BJ 104 with 15% more fodder.

**ICMS 7703**

**(ICMV 4; MP 15)**

Released in 1985 for cultivation in all pearl-millet growing areas of India. It matures in about 85 days, maintains a good level of downy mildew resistance, and grows well in low-rainfall areas. Over 6 years of testing in coordinated trials, this synthetic has given the same grain yield as WC-C75.

**ICMH 451**

**(MH 179)**

Released in 1986 for cultivation in all pearl-millet growing areas of India. It is resistant to downy mildew, and matures in about 90 days at ICRISAT Center. With its grain yield at 2.2 t/ha in the coordinated trials, this hybrid has outyielded the best commercial hybrid MBH 110.

**ICMH 423**

**(MH 143)**

Released in 1988 for cultivation in all pearl-millet growing areas of India. The hybrid tillers well and matures in 80-85 days. Its grain yield has been similar to that of MBH 110 (2.1 t/ha) with 20% more fodder yields in the coordinated trials.

**MP 124**

**(ICTP 8203)**

Released in 1988 for cultivation in Maharashtra and Andhra Pradesh, where it has produced 7-11% higher grain yields than WC-C75 in the coordinated trials. The cultivar is highly resistant to downy mildew disease. It has large seeds and performs well under terminal drought stress.

### **Chickpea (Chana)/*Cicer arietinum***

**ICCC 32**

**(ICCV 6)**

Identified for release in central India in 1984, in the North-West Plain Zone in 1985, and released in Nepal in 1990 as "Kosheli." It is the first kabuli chickpea resistant to two races of fusarium wilt, and has shown tolerance to dry root rot, pod-borer attack, and salinity. The cultivar is medium maturing (about 150 days). Grain yield in farmers' fields in Madhya Pradesh in 1984/85 was 1.6 t/ha (as compared with 1.2 t/ha from L550). From 1981/82 to 1984/85 it yielded 2.1 t/ha in the North-West Plain Zone, compared with 1.7 t/ha of L550.

**ICCV 2**

**(ICCX 752770-13P-2P-BP)**

Identified as the shortest-duration chickpea and the first wilt-resistant kabuli for lower latitudes, ICCV 2 was registered in Crop Science 25:576-577 in 1985. It gained wide popularity in peninsular India in 1987/88 and can yield >1 t/ha on residual moisture. Under irrigated conditions, yields up to 3.3 t/ha have been achieved in Maharashtra. In 1989, the Government of Andhra Pradesh re-

leased this under the name "Swetha" as a first kabuli cultivar ever for cultivation in Andhra Pradesh.

**ICCV 5 (ICCX 780168-65P-5P-BP)**

Identified as one of the first wilt-resistant kabuli chickpeas, ICCV 5 was registered in 1985 in Crop Science 25:576-577. It was selected from a cross between C 104 and CPS 1. In demonstration plots in peninsular India in 1987 and 1988, it yielded >1.5 t/ha on residual moisture in areas where chickpeas of medium duration are grown. Under irrigation, 3 t/ha can be harvested. The seeds are attractive and fetch prices higher than those for desi seeds.

**ICCC 4 (ICCV 1)**

Released for cultivation in 1983 in Gujarat, and in 1987 in Nepal under the name "Sita". It is a cross between H208 and T3. It is a semierect, medium-maturing variety (110-140 days, depending on the growing conditions). It has medium-to-large seeds, with seed protein about 21%, and cooks more quickly than Annigeri and BDN 9-3. Its average grain yield is 2.8 t/ha.

**ICCC 37**

This cultivar was released in 1989 by the Government of Andhra Pradesh under the name "Kranthi". It was multiplied and distributed, after on-farm testing, jointly by the Andhra Pradesh Agricultural University (APAU) and ICRISAT. It is from a three-way cross between P 481, JG 62, and P 1630. It is an erect, short-duration desi chickpea and can yield 1.5 t/ha under rainfed conditions and 3 t/ha under irrigated conditions. The seeds are medium-sized, attractive, and especially suited for making dhal.

**ICCV 7 (ICCX 730008-8-1-1P-BP-8EB)**

Identified as a donor parent resistant to *Helicoverpa* pod borer for use in plant breeding pro-

grams. It was selected from a cross of H208 (ICC 4954) and BEG 482 (ICC 4923). It is a semi-spreading variety with moderate plant height (30-40 cm) and predominantly apical branching. In multi-locational trials over a period of 5 years this variety yielded 0.90 t/ha compared with 0.95 t/ha from Annigeri. The pod borer damage for these varieties was 5.6% for ICCV 7 and 11.2% for Annigeri. It is early maturing and takes 45 days to flower and 90-100 days to mature in peninsular India. It is, however, like most other *Helicoverpa*-resistant lines, susceptible to wilt.

### **Pigeonpea (Tur/Arhar)/*Cajanus cajan***

**Pragati** (ICPL 87)

Released for cultivation in peninsular India and Maharashtra in 1986. It was bred from the cross T21 x ICP 6993 (JA 277). It is determinate, short-statured, has large seeds, and tolerates fusarium wilt. At ICRISAT Center it yields over 3.0 t/ha in 120 days at high density (30 plants/m<sup>2</sup>) when sole-cropped with normal and high levels of inputs. Under favorable environments additional ratoon harvests are possible. At ICRISAT Center, the line produced 5.2 t/ha in three harvests.

**Jagriti** (ICPL 151)

Released for sole-cropping at high density in central India and, in northern India, for growing in rotation with wheat. It was bred from the cross ICP 6997 x Prabhat. It is determinate, short-statured, has large cream colored seeds, and tolerates sterility mosaic disease. At ICRISAT Center, the line matures in about 110 days and has a yield potential of 3.0 t/ha.

**Maruti** (ICPV 1; ICP 8863; KGT 1)

Released in 1985 for cultivation in Karnataka. It is a selection from cv 15-3-3 from Badnapur (Maharashtra). It has shown complete resistance to

fusarium wilt in countrywide trials. It is indeterminate, medium maturing (about 180 days) and has yielded up to 2.4 t/ha.

#### **ICPL 270**

A selection from AS71-37 from Sehore (Madhya Pradesh). It has shown resistance to fusarium wilt. It is indeterminate, medium maturing (160-190 days), and has yielded up to 3.2 t/ha. The cultivar has been submitted for release in Karnataka.

#### **ICPL 84060**

This is a *Helicoverpa-tolerant* line selected from the cross ICP 1900-11 x BDN 1 that has indeterminate growth habit. It matures in 160-180 days and, under pesticide-free conditions, it has shown low pod damage (averaging about 18%) compared with 50% in the control cultivar. It yields about 1.6 t/ha.

#### **ICPL 83024**

A short-duration line derived from the cross Prabhat x ICP 7035. It is determinate in growth habit and has very large (17 g/100 seeds) round, dark brown seeds. It has shown a high level of resistance to sterility mosaic disease and is wilt tolerant. At ICRISAT Center, it matures in 125 days and has a yield potential of 2.5 t/ha.

#### **ICPL 85014**

An extra-short-duration line bred from the cross ICPL 81 x QP 223. It is short statured and determinate in growth habit. It is comparatively photo-period-insensitive and matures in 100 days. At ICRISAT Center, three crops have been harvested in a year. The line has potential for adaptation to diverse cropping systems and environments including higher latitudes and altitudes.

### **ICPH 8 (Hybrid)**

First short-duration pigeonpea hybrid developed by crossing a male-sterile line, MS Prabhat (determinate) and an indeterminate advance line ICPL 161. It is indeterminate in growth habit and matures in 130-135 days. Seeds are brown with a mass similar to that of UPAS 120 (8 g per 100 seeds). On an average, the hybrid yielded 40% more than the control cultivar UPAS 120. It has a yield potential of 3.5 t/ha.

### **Abhaya**

**(ICPL 332)**

This is the first *Helicoverpa* pod borer-tolerant variety released for cultivation in Andhra Pradesh in 1989. It is indeterminate, medium duration (170-200 days) and has yielded up to 2.7 t/ha<sup>-1</sup>.

### **Groundnut (Mungphali) / *Arachis hypogaea***

#### **ICGS 11**

**(ICGV 87123)**

Released in 1986 for cultivation in the post-rainy season (rabi/summer) in central and peninsular India, consisting of Andhra Pradesh, Karnataka, parts of Madhya Pradesh, and Maharashtra. It is a Spanish selection and has dark green foliage, small- to medium-sized two-seeded pods with tan-colored seeds, about 48% oil, and a 70% shelling turnover. It has shown, on average, 25% pod yield superiority over the local control cultivar SB XI, the highest pod yield being 4.5 t/ha. It is tolerant of bud necrosis disease under field conditions.

#### **ICGS 44**

**(ICGV 87128)**

Released in 1988 for cultivation in the post-rainy season (rabi/summer) in Gujarat. It is a Spanish selection. It has two-seeded small-to medium-sized pods with tan-colored seeds, 49% oil, and a 70% shelling turnover. It has shown, on average,



24% pod yield superiority over the local variety GG 2. It is tolerant of bud necrosis disease under field conditions. It is also well adapted to rainy-season (kharif) cultivation in peninsular India.

#### **ICGS 1**

**(ICGV 87119; SG 84)**

Released in 1990 for rainy season (kharif) cultivation in Bihar, Haryana, Punjab, Rajasthan, and Uttar Pradesh. It was also released earlier in 1986 for spring season (from Feb/Mar to Jun) cultivation in Punjab as "Spring Groundnut 84". It has also given very encouraging performance in summer-season cultivation in Uttar Pradesh. It is a Spanish selection with medium-to-small dark green, elliptic leaves. It has mainly 2-seeded medium-sized attractive pods and a 70% shelling turnover. Its tan colored seeds contain 51% oil and 21% protein. It has outyielded JL 24 by 17%, J 11 by 11%, and AK 12-24 by 36%, in rainy-season trials.

#### **ICGS 5**

**(ICGV 87121)**

Released in 1989 for rainy season (kharif) cultivation in Uttar Pradesh. It is a Virginia bunch selection. It has small- to medium-sized two-seeded pods with tan-colored seeds. On an average it has produced 2.7 t/ha of pods and has outyielded all test entries including Kadiri 3 and RS 138 in trials. It has about 47% oil and its shelling turnover varies from 64 to 71%.

#### **ICG (FDRS) 4**

**(ICGV 87157)**

It is a breeding line with sequential flowering and bunch growth habit. It was identified for adaptive trials in the rainy season in Andhra Pradesh, Karnataka, and Maharashtra. It has two-seeded striated pods with tan-colored medium-sized seeds which contain 49% oil. Its shelling turnover ranges from 64 to 71%. It has shown 9-25% pod yield superiority over the local variety TMV 2. It has high resistance to rust and moderate resistance to late leaf spot and, compared with local varieties, is less susceptible to bud necrosis disease and peanut mottle virus.

**ICG(FDRS)10****(ICGV 87160)**

Released in 1990 for cultivation in the rainy season (kharif) in the states of Andhra Pradesh, Karnataka, and Maharashtra. It is a sequentially flowering bunch selection. It has two-seeded pods, tan-colored medium-sized seeds, 48% oil, and a shelling turnover of 68-69%. It has shown 12-21% yield superiority over the local variety JL 24. It has high resistance to rust and moderate resistance to late leaf spot. It shows less susceptibility to bud necrosis disease, peanut mottle virus, stem rot, and leaf miner attack than local varieties.

**ICG 2271**

This is an introduced Virginia breeding line from North Carolina State University, USA. It was identified at ICRISAT Center as resistant to or tolerant of pod-boring insects, pod-scarifying termites, thrips, jassids, leaf miner, and bud necrosis disease. It was recommended for adaptive trials in Kerala and Tamil Nadu where it surpassed the yield of the national control M 13 by 45% and local variety TMV 10 by 49%. It has large two-seeded pods with tan-colored seeds. Its oil content (45%) and shelling turnover (67%) are comparable with those of M 13 and TMV 10.

**ICGS 76****(ICGV 87141)**

Released in 1989 for rainy season (kharif) cultivation in Andhra Pradesh (excluding North coastal districts), Karnataka, Kerala, southern Maharashtra, and Tamil Nadu. It has produced, on average, 33% higher pod yield than national control variety Kadiri 3. It has a potential pod yield of 2.5-3.5 t/ha. It is a Virginia selection with medium-to-small elliptic, dark green leaves. It has mainly 2-seeded, medium-sized attractive pods with 73% shelling turnover. Three-seeded pods are occasional. Its tan-colored seeds contain 43% oil and 20% protein. It has field tolerance to bud necrosis disease and has shown good recovery for pod yield from mid-season drought.

Released in 1990 for summer season cultivation in Gujarat, Madhya Pradesh, and northern Maharashtra. It has produced, on average, 41% higher pod yield than national control variety J 11. It has also shown pod yield advantage of 93% over JL 24 and 27% over ICGS 44. It out-yielded GG 2 by 17% in adaptive trials in Gujarat. It is a Spanish selection with small-medium, dark green, elliptic leaves. It has 2-seeded medium-sized pods and a 70% shelling turnover. Its tan colored seeds contain 48% oil and 23% protein. It is moderately resistant to rust and late leaf spot and tolerant of bud necrosis and peanut mottle virus. It is photoperiod insensitive and also tolerant of end-of-season drought.

