

XX-Workshop

Venue : Kerala Agricultural University, Vellanikkara

Date : 9th - 12th April, 2002

Collection, evaluation and conservation of germplasm

Promising germplasms identified by different centres are given in table

Table- Promising Lines Identified

| Crops | Source | Notables/Promising lines |
|-------------------|------------------|---|
| Amaranths | Vellanikkara | VKA-6, VKA-44 (high yielder) |
| (Leafy type) | Jorhat | Strains 4,5 & 6 (high yielder) |
| Brinjal | Bhubaneswar | BBSR-95, BBSR-91, BBSR-104, BBSR-109, BBSR-118 |
| | HARP, Ranchi | CH-575, CH-378, CH-450, CH-575, CH-665 |
| | IARI | Acc. No. 313 |
| | NBPGR, New Delhi | EC 384565, 379246, IC 90806, 90031 (high yielder), IC 90922, 90047, 90970, EC 384565 (field resistant to Phomopsis blight) |
| Bitter gourd | Vellanikkara | VKB 127, VKB-120, VKB-129, VKB-130, VKB-139 |
| Bottle gourd | Faizabad | NDBG-403, NDBG-512, NDBG-523, NDBG-524, NDBG-528 |
| Carrot (Tropical) | Hisar | Red coloured Jind Collection, HC-1, HC-131-1, Hisar Local-5 |
| | | Yellow HCY-`83, HCY-235 |
| | | Black HC-23, HCB-170 |
| | | Purple HCP-118-1, HCP-261 |
| Cauliflower | IIVR | Kunwari-15, PDVR-8 (Kunwari Group) |
| (Early group) | | JBT-22/79, Katki-6, Katki-29, Katki-15 (Katki Group) |
| | Sabour | 81-5, 84-3, 91-1, 92-1, 92-2, 93-2, 93-3, 94-1, 94-2, 95-3 (Early Group) |
| Cauliflower | IIVR | IIVR-12, IIVR-6, Aghani-4 (Aghani group) |
| (Mid-group) | | Pusi-1, Maghi-1, Pusi-4 (Pusi group) |
| Cauliflower | Solan | Snowball, Eu super |
| (Late group) | | |
| Chillies | IIVR | PBC-535 (res. To PVY, CVMV), KA-2 |
| | Kalyani | Suryamukhi, Beldanga Local, Dinjata Coll-2, Dinjata Coll-1 |
| | Dharwad | 2000/Er-BSS-128, MSL/I/14 |
| | Jorhat | Balijuri |
| Cucumber | IIVR | VRC-11, Fl Cu-4, Patna-3 |
| | HARP, Ranchi | CH-124, CH-123, CH-136 |
| <i>Dolichos</i> | IIVR | Gomchi Green (off season pod setting), JDL-101 |
| | HARP, Ranchi | CHDB-77, CHDB-76 |
| French bean | NBPGR, New Delhi | IC 311665, 311085, 274526, 313281 (Bush type) |
| | | IC 311706, 311707, 274529 (Pole type) |
| Garlic | NHRDF | Coll. No. 367, Coll No. 372, Coll No. 363 (tolerance against <i>Stemphyllium</i> blight & purple blotch) |
| | NRC (O&G) | Acc No. 316 |
| Cowpea | NBPGR, New Delhi | IC 259105, 287428, 219871, |
| | NBPGR, Jodhpur | EC 18321, 57449 (tolerance to <i>Cercospora</i> leaf spot) |
| Pea | NBPGR, New Delhi | IC 267587, 267144, 28715 |

| Crops | Source | Notables/Promising lines |
|-----------|-----------------|--|
| Ivy gourd | IIVR | VRK-65-2, VRK-74-2-1, VRK-01 |
| | Vellanikkara | CG-23, CG-27, CG-21, CG-29 |
| Muskmelon | Ludhiana | Australia-99-1, DMDR-1, T-7, Silver World |
| Okra | IIVR | <i>A. manihot</i> , <i>A. crinitus</i> (res. to powdery mildew) |
| | NBPGR, Thrissur | TCR-899, EC-305749C4, 306722A and EC 306722A4) |
| Parwal | IIVR | VRPG-12, VRPG-148 |
| | Kalyani | IMV (BC-4), 14 PG (BC-6), 4A (BC-11) |
| | HARP, Ranchi | Swarn Alaukik, Swarn Rekha, CH-22, CH-3, CH-38, CH-37 |
| | Sabour | Rajendra Parwal-1, Rajendra Parwal-2, 94-1, 94-2, Mridangia, Nimia, 2000-1 |
| Pumpkin | Faizabad | NDPK-204, 205, 209, 210, 215, 227 |
| Tomato | IIVR | RT-6, CLN-2112-86-2-10-1-7-0, CLN-1558B |
| | Solan | Lo-2744, Lo-2455, CLN-1463A |
| | HARP, Ranchi | EC 326142A, BL-985, EC-339061-1-1, CH-193 |

Vegetable Agronomy

Tomato

Nursery

1. Seedlings of hybrid tomato Apoorva raised in potting plugs provide better vigour and plant stand than the other methods. Further when the seedlings were transplanted in the field gave higher yield (391.96 q/ha) and C:B ratio (1:1.63). Hence it is recommended for Kanpur conditions of Uttar Pradesh.
2. The raising of seedlings of hybrid tomato ARTH-3 at Coimbatore gave better results when it is grown in poly bags. But, there was no significant difference in the field performance of the seedlings raised in different methods. Hence the raising of the seedlings in polybags is recommended for Coimbatore conditions.
3. At IIVR, Varanasi, raising of seedlings of tomato hybrid Avinash-2 in polybags gave better performance and became ready to transplant within 20 days after seed sowing. But when the seedlings were transplanted under field condition, the maximum average yield (1026.6 q/ha) and C:B ratio (1:5.72) was recorded under nursery raised by traditional method compared to the others. Hence it is recommended for Varanasi condition of U.P.

Training cum spacing/pinching

1. Planting of tomato hybrid ARTH-4 at 80 x 45 cm along with staking and pinching of side branches at 30 cm from ground gave highest yield (372.36 q/ha) and maximum C:B ratio (1:2.84). Hence it is recommended for cultivation under Sabour conditions.
2. Planting of tomato hybrid ARTH-4 at 80 x 45 cm along with staking and without pinching gave maximum yield (470.80 q/ha) and maximum C:B ratio (1:2.92), hence it is recommended for cultivation under Ambajogai conditions.

Protected cultivation

1. At Pantnagar, the maximum yield of tomato hybrid Avinash-2 (1227.0q/ha) and C:B ratio (1:4.26) was recorded when the seedlings were transplanted at 50x30 cm spacing maintaining single shoot per plant with staking under low cost poly house.



Tomato production under protected condition

Hence it is recommended for the cultivation under Tarai region of Pantnagar.

Organic farming

1. Application of 20 t FYM + $\frac{1}{2}$ recommended dose of NPK (150:80:100 kg/ha) in tomato hybrid Avinash-2 gave maximum yield (773.0 q /ha) along with C:B ratio (1:4.00), hence it is recommended for cultivation under the Varanasi region of Uttar Pradesh.
2. At Faizabad, the maximum yield (332.05 q/ha) and C:B ratio (1:3.45) of tomato cv. Narendra Tomato-2 was recorded with green manuring + recommended dose of NPK (60:30:30 kg/ha) when the seedlings were transplanted at 60 x 45 cm.. Hence it is recommended for Faizabad condition.
3. The highest yield (346.87 q/ha) and C:B ratio (1:2.35) was obtained with the application of FYM @ 20 t/ha + full recommended dose of NPK (150-60-60 kg/ha) in tomato cv. S-7 at Sabour. Hence , it is recommended for Sabour condition of Bihar.
4. Application of FYM @ 40 t/ha + full recommended dose of NPK (180:120:80 kg/ha) in tomato hybrid ARTH-3 gave maximum yield (329.69 q/ha) and C:B ratio (1:1.49). Hence it is recommended for Jaipur conditions of Rajasthan.

Chilli

Fertilizer trial

1. Application of 240 kg N, 60 kg P₂O₅ and 60 kg K₂O/ha under Hyderabad condition gave maximum dry chilli yield (16.42 q/ha) of cv G-4 and cost benefit ratio (1:1.92). Hence it is recommended for cultivation under Hyderabad conditions.

Weed control

2. At Coimbatore, the highest weed control efficiency (74.7%) with an yield (21.75 q/ha) of dry chilli cv CO-1 was recorded with maximum C:B ratio (1:4.58) with the application of Basalin @ 1.0 kg ai/ha + one hand weeding at 45 days after transplanting. Hence it is recommended for Coimbatore conditions.

Biofertilizer

3. Application of 75% recommended dose of N (150 kg/ha) + Azospirillum as seed treatment, seedling dip and soil incorporation at IIVR, Varanasi gave maximum yield of green chilli cv. LCA-235 (117.52 q/ha) along with maximum C:B ratio (1:1.77) followed by application of 50% recommended dose of N + Azospirillum. Hence it is recommended for chilli cultivation under Varanasi condition of Uttar Pradesh.

Okra

Weed control

1. Application of Dual @ 1 kg ai/ha as pre emergence spray is recommended for effective weed management and obtaining economic yield (122.29 q/ha) and C:B ratio (1:3.88) by okra variety Parbhani Kranti followed by Basalin @ 1.5 kg ai/ha as PPI. Hence it is recommended for Kanpur condition of Uttar Pradesh.

Cabbage

Biofertilizer

Application of *Azotobacter* as seed treatment seedling, dipping and soil application of 75% recommended dose of N (140 kg/ha) in cabbage variety Pride of India gave maximum yield (379.0 q/ha) and cost benefit ratio (1:3.41). Hence, it is recommended for application of the Tarai conditions of Pantnagar.

At Hyderabad, 75% recommended nitrogen along with *Azotobacter* realized an yield of 376.78 q/ha with C:B ratio of 1:3.41 which is on par with 100% recommended dose of nitrogen (180 kg/ha). Hence, application of *Azotobacter* + 75% recommended dose of nitrogen can save 25% of nitrogen per hectare. Hence it is recommended for Hyderabad condition.

French bean

Fertilizer Trial

1. Application of 160 kg N and 90 kg P₂O₅, at Hyderabad gave the highest yield of French bean green pods cv. Contender (31.8 q/ha) with maximum cost benefit ratio (1:1.63). Hence, it is recommended for green pod cultivation under Hyderabad conditions.
2. The maximum marketable yield of French bean var. Arka Komal (138.93 q/ha) along with C:B ratio (1:3.85) was recorded by the application of 160 kg nitrogen and 60 kg P₂O₅/ha. Hence it is recommended for the cultivation for green pod under Jabalpur conditions.
3. At Kalyanpur, the maximum yield of green pods of French bean cv. Pant Anupama (77.18 q/ha) and C:B ratio (1:2.77) was recorded with the application of 80 kg N and 60 kg P₂O₅/ha. Hence it is recommended for the Kanpur conditions of Uttar Pradesh.

Bottle gourd

Training cum spacing trial

1. At Pantnagar, in training cum pinching trial, the maximum yield (513.3 q/ha) and C:B ratio (1:2.68) was recorded the plants were trained on Bower system without pinching of shoots in the bottle gourd hybrid Pant Sankar Lauki-1. Hence it recommended for the Tarai conditions of Pant Nagar.

Seed Production

- On the basis of three years' results at Rahuri, it is recommended that maximum good quality seed yield in onion (B-780) can be obtained in Maharashtra by planting bulbs in the second fortnight of October and early November.
- Maximum seed yield of okra (Hissar Unnat) can be obtained by sowing on 15th June at a spacing of 60 x 30 cm under Hissar condition.
- Under Vellanikkara condition, maximum seed yield of okra (Arka Anamika) can be obtained by sowing on 15th May at 45 x 45 cm spacing.
- Extraction of seeds from brinjal by fermentation in water for 48 hours is recommended for maximum recovery and good quality seeds on the basis of trials conducted at Hissar, IIVR and Vellanikkara.
- On the basis of trial conducted at Solan, it is recommended that in brinjal (Pusa Purple Cluster)

seeds may be extracted by using acid fermentation @ 10 ml/ Kg of pulp for 45 minutes whereas in cultivar Pusa Kranti, fermentation in water for 48 hours should be used.

- Harvesting of brinjal fruits at fully ripened stage is recommended for production of good quality seeds in cultivars Pant Rituraj and H-8 (IIVR), BR-112 and H-8 (Hissar) and Pusa Purple Cluster and Pusa Kranti (Solan).
- On the basis of three years result at Vellanikkara, application of 80 Kg/ha Nitrogen and 40 Kg / ha Phosphorus is recommended for higher seed yield in bitter gourd cultivar Preethi.
- On the basis of trials at Solan, it is recommended that for quality seed production from tomato cultivar Roma, the fruits harvested from first picking are superior.
- The harvesting of fruits of tomato (S-7) of third picking is recommended for good quality seed production under Varanasi condition.

Varietal Trial

| Crops | Name of Entries | Source | Recommended zones |
|--------------|-----------------|---------------|-------------------|
| Chillies | PMR-57/88-K | IIHR | VII |
| Bottle gourd | NDBG-104 | Faizabad | IV |
| Cucumber | CH-20 | HAFRP, Ranchi | IV |
| | PCUC-28 | Pantnagar | I, VII, VIII |



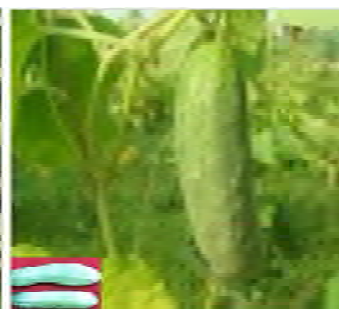
PMR-57 (Arka Suphal)



NDBG-104



CH-20 (Swarna Poorna)



PCUC-28 (Pant Khira-1)

Heterosis Breeding

The committee has recommended the following hybrids for release after thoroughly scrutinizing the data of minimum two years.

| | Crops | Name of hybrids | Source | Recommended zones |
|----|-----------------|-----------------|--------------|-------------------|
| 1. | Brinjal (Round) | BH-1 | Ludhiana | IV |
| 2. | Tomato (Det.) | DTH-8 | IARI | IV |
| | | CHTH-1 | HARP, Ranchi | IV |
| 3. | Tomato (Indet.) | ARTH-128 | Ankur | VII |
| 4. | Chilli | Sungro-86-235 | Sungro | IV, VIII |
| 5. | Capsicum | Lario | Syngenta | I |
| 6. | Muskmelon | MHY-5 | Durgapura | VII |
| 7. | Okra | DVR-4 | IIVR | IV, V, VII |



BH-1



DTH-8



CHTH-1



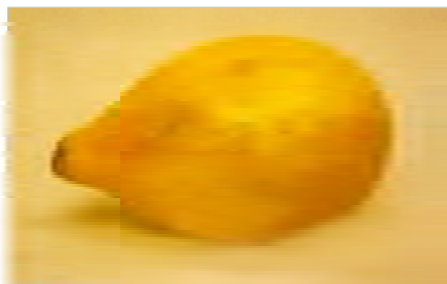
ARTH-128



Sungro-86-235



Lario



MHY-5



DVR-4 (Kashi Mahima)

Resistant Varietal Trial

After thorough analysis of the data for the last five years, the following entries have been identified as resistant ones and recommended for release under AICRP (VC) Programme during XX Group meeting held at KAU, Vellanikkara.

| Crops | Name of the entries | Centre | Disease | Recommended zones |
|-------------------|---------------------|----------|---------------------|-------------------|
| Peas (Mid season) | NDVP-250 | Faizabad | Powdery Mildew | V |
| Muskmelon | DMDR-2 | IARI | Downy mildew + CGMV | IV & V |
| Okra | VRO-4 | IIVR | YVMV | IV & V |
| Brinjal | CHES-309 | Ranchi | Bacterial wilt | I & VII |

