

# PUNJAB AGRICULTURAL UNIVERSITY

## 1. Latest Varieties/ Hybrids Released

- **PBW 725( Wheat):** It is resistant to yellow and brown rust. It matures in about 154 days. Its average grain yield is 22.9 q/acre. It possesses good grain quality characteristic.
- **PMH 10 (Maize):** It is a single cross maize hybrid released for cultivation during spring season in Punjab. It matures in about 120 days and its average yield is 31.5 q/acre.
- **Punjab Til No. 2 (Sesame):** Its average yield is 2.8 q/acre. It has better tolerance to *Cercospora* leaf blight.
- **PBN 346 (Napier Bajra Hybrid)** (subject to the approval by SVAC) - The released variety is tall, leafy, non hairy, with long and broad leaves, high number of tillers and leaf: stem ratio.
- **PBH-4 (Brinjal):** It is an early maturing F<sub>1</sub> hybrid of long group brinjal. Its plants are medium in height, compact, thornless with green foliage. Flowers are purple, borne in cluster and solitary. Fruits are long, medium sized, shining and purple-black with green calyx. Average yield is 267 q/acre.
- **PG-18 (Garlic):** Plants have soft-neck (non-bolting) with green leaves. Bulbs are large (4.55 cm diameter), attractive and white with average bulb weight of 28.4 g. Cloves are medium to large sized, white and average clove number of 26 per bulb. It has dry matter of 38% and allicin content of 1.15%. Bulbs can be stored upto five months with 40% losses. Average yield is 51 q/acre.
- **PPH-1 (Pumpkin):** Its fruits are small, round, mottled-green at immature stage and mottled-brown at mature stage. Fruit cavity is small and flesh is golden yellow. It is extra-early in maturity and gives 168 q/acre yield.
- **PPH-2 (Pumpkin):** Its fruits are small, round, light green at immature stage and smooth-brown at mature stage. Fruit cavity is small and flesh is golden yellow. It is extra-early in maturity and gives 183 q/ha yield.
- **PAU Kinnow-1:** It is mid-season variety and matures in January. The fruits are low-seeded with 0-9 seeds per fruit as compared to Kinnow. Yield of five year old Kinnow plant is 45 kg.
- **Punjab Shyamli (Chrysanthemum):** It is a mid-season flowering variety that requires 117 days for flowering. Plants have a height of 75 cm and flowers are of pompon-type, purple with a deep purple centre. The variety produces 49 flowers per plant, having an average diameter of 5.3 cm. It is suitable for cut flower purpose

## 2. Production Technologies

- Real time nitrogen scheduling using leaf color chart (LCC) saved 12 kg N /acre in maize, and 6-20 kg/acre in wheat.
- Use of bio-fertilizers containing Arbuscular mycorrhizal fungi improved wheat yield.

- Raised bed planting of **kharif mungbean and pigeonpea** not only saves irrigation water but also saves the crop from adverse effect of heavy rains.
- Bud forcing is a technique to induce early scion bud break and faster growth of nursery of Kinnow and Kagzi lime and provides early saleable nursery plants.
- Mango can be propagated through wedge grafting from end-July to end-August on rootstock of same or greater diameter than the bud stick under open field or protected conditions.
- The fertilizer dose, timing and its method of application to plantations of clonal eucalyptus during different growth years were standardized for obtaining higher productivity from plantations.
- There is no need to apply urea to basmati varieties i.e. Punjab Basmati 2, Punjab Basmati 3 and Pusa Basmati 1121 after green manuring or incorporation of summer moong straw after picking of pods.
- Maize/*summer* groundnut-*kharif* onion-onion Cropping systems have been recommended for crop diversification.
- Turmeric - onion Organic cropping system has also been recommended.
- Intercrop one row of oats as fodder in between gobhi *sarson* rows for getting additional fodder.

### 3. Protection Technologies

- MAK Bharat Petroleum Horticultural mineral oil @ 1.25% has been recommended against citrus psylla and citrus aphid on kinnow.
- Two sprays (first at boot stage and second after 15 days interval) with Nativo 75 WG (Tebuconazole+Trifloxistrobin) @ 80 g in 200 litre of water per acre are effective for management of sheath blight and brown spot of rice
- Fame 480 SC (flubendiamide) @ 20 ml/acre against stemborers and leaf folder in rice and *basmati* rice and Marktriaz 40 EC (triazophos) @ 350 ml/acre against stemborers and leaf folder in rice have been recommended.
- Indoxacarb 14.5 SC @ 500 ml/ha has been recommended against tomato fruit borer in tomato.
- Spray of indoxacarb 14.5 SC or spinosad 45 SC at flower initiation stage helps in effective management of spotted pod borer in pigeonpea.
- Eco-friendly management of fruit flies in mango orchards can be done by fixing PAU fruit fly traps @ 16 traps per acre in the 3<sup>rd</sup> week of May
- Yellow rust of wheat has emerged as a serious disease problem in the state, its occurrence and development during different months has been investigated and found that it initially appears in sub mountainous areas of the Punjab during December and January and then spreads to other areas in February. Management of yellow (stripe) and brown rust of wheat with sprays of Stilt 25 EC @ 200 ml in 200 litres of water per acre
- Application of sulfosulfuron at 24.4 g/ha as early post emergence (14-21 days after sowing), before first irrigation, provides effective control of *P. minor* in wheat.
- Application of bispyribac-sodium at 25 g./ha at 15- 20 days after nursery sowing of rice provides effective control of mixed weed flora.

- Early post emergence application of Granite 240 SC (penoxsulam) at 25g a.i./ha applied at 10-12 DAT for effective control of weeds in transplanted rice.
- Post emergence application of Ricestar 6.7 EC (fenoxaprop) at 67.0 g a.i. / ha applied at 20-25 DAT for effective control of *Leptochloa* and *Ischaemum* weeds in transplanted rice.
- Post emergence application of Ricestar 6.7 EC (fenoxaprop) at 67.0 g a.i. / ha applied at 20 DAS for effective control of *Leptochloa*, *Dactyloctenium*, *Eragrostis*, *Digitaria* and *Echinochloa* weeds in direct seeded rice.
- Post-emergence application of sulfosulfuron 25 g, metsulfuron 5 g, sulfosulfuron + metsulfuron 30 g, pinoxaden 50 g, mesosulfuron + iodosulfuron 14.4 g and carfentrazone-ethyl 20 g /ha, based on weed flora in the field, at 30-35 days after sowing wheat in autumn sugarcane-wheat intercropping system effective for control of annual weeds.

#### **4. Post-Harvest Management Technologies**

- For advance marketing of summer crop Baramasi lemon can be degreened in 6-7 days at room temperature by dipping in 1250 ppm ethephon solution for 5 minutes.
- Mango fruits of Dusehri and Langra packed in CFB boxes with paper lining can be ripened at 25°C, five and four days after harvesting, respectively
- Punjab soft pear fruits dipped in calcium chloride (2%) for five minutes can be stored for 60 days at 0-1°C and 90-95% RH.
- Packaging of bell pepper fruits in paper moulded trays followed by wrapping with heat shrinkable film or cling film seems to hold promise in improving shelf life and maintaining the quality and enhancing the consumer appeal under super market and ordinary market conditions for 10 and 7 days respectively as against 5 and 2 days in case of control (unpacked).

## **Challenges**

- Depleting underground water
- Deteriorating soil health
- Yield enhancement
- Predominance of rice-wheat system
- Agro-processing
- Crop residue management
- Labour shortage
- Climate change