

निदेशक की लेखनी से...

इस साल परिसर में मानसून औसत से ऊपर प्रदर्शन कर रहा है (जून में 158 मिमी और जुलाई में 141 मिमी बारिश हुई)। वर्षा छाया क्षेत्र होने के कारण, आम तौर पर खरीफ के मौसम के दौरान यहाँ लंबे सूखे का अनुभव किया जाता है। हालांकि, इस वर्ष के दौरान जून की शुरुआत से प्री-मॉनसून वर्षा और मानसून की बारिश लगातार हो रही है। लॉक डाउन की पृष्ठभूमि पर, समय पर बुवाई के लिए खरीफ का संचालन शुरू किया गया था। लेकिन इस अवधि के दौरान लगातार बारिश ने जुताई कार्यों को बाधित किया। इसके बावजूद, खरीफ फसलों की अधिकांश प्रयोगात्मक और सामान्य बुवाई पूरी हो चुकी है। आगे खरपतवार वृद्धि, आर्द्र मौसम के कारण नींबू, अंगूर, अनार, आदि में रोग प्रसार और अंगूर में काड़ी की पक्वता के मुद्दों पर काफ़ि चुनौतियाँ हैं।

एकीकृत खरपतवार, कीट और रोग प्रबंधन प्रथाओं के माध्यम से जैविक तनाव के मुद्दों से निपटने की योजना है। हाथ से निराई और जुताई के कार्यों के साथ-साथ खरपतवार प्रबंधन के लिए सुरक्षित और अनुशंसित शाकनाशक का उपयोग किया जाएगा। इसी तरह एकीकृत कीट और रोग प्रबंधन के लिए, बेहतर छिड़काव और धूप के प्रवेश के लिए छायाई कार्य द्वारा पेड़ों की कैनोपी को खोला जाएगा। अधिमानतः जैविक नियंत्रण एजेंटों का उपयोग किया जाएगा क्योंकि प्रचलित मौसम की स्थिति लाभदायक जीव की स्थापना के लिए अनुकूल होती है। इस अंक के माध्यम से ड्रैगन फ्रूट के बारे में कुछ तथ्यों पर प्रकाश डालने की कोशिश की गई है, जो इसकी खेती से संबंधित विभिन्न मुद्दों को हल करने में मदद करेंगे। साथ ही परिसर की जैव विविधता के अभ्यास के लिए नया खंड शुरू किया गया है।

‘फार्म कोरडीनेटर’ प्रक्षेत्र की गतिविधियों, उपलब्धियों और भविष्य की योजना को प्रस्तुत करता है। मुझे पूरी उम्मीद है कि इस प्रयास से नियासम और अन्य जगहों पर अनुसंधान प्रक्षेत्र प्रबंधन में सुधार होगा।

मैं डॉ. प्रवीण तावरे और सहकारियों को इस प्रकाशन को नियमित रूप से प्रस्तुति में उनके समर्पण और लगन के लिए धन्यवाद देता हूँ।

From Director's Desk...

This year monsoon is performing above average at campus (received 158 mm rain in June and 141 mm in July). Being rain shadow area, generally long dry spells are experienced in the area during *kharif* season. However, during this year the



monsoon showers are consistent. Even on the background of lock down, *kharif* operations were initiated in time. But continuous rains during this period interrupted tillage operations. Majority of experimental and general sowing of *kharif* crops have been completed. The main challenges ahead are weed growth; disease proliferation in citrus, grape, pomegranate, etc. and cane maturity issues in grape due to humid weather.

It is planned to tackle biotic stress issues through integrated weed, pest and disease management practices. For weed management along with hand weeding and tillage operations, safe and recommended herbicides will be used. Similarly for integrated pest and disease management, opening of tree canopy will be carried out by pruning operations for better spray and sunlight penetration. Preferably biological control agents will be used as the prevailing weather conditions are conducive for establishment of beneficial organism. In this issue it is tried to put light on some facts about dragon fruit, which will help in addressing various issues related to its cultivation. Also new section has been started to explore biodiversity at campus.

The ‘Farm Coordinator’ presents the activities, achievements and future plan for the NIASM farm. I sincerely hope that this effort will improve research farm management.

I thank Dr. Pravin Taware and the team for their dedication and sincerity in bringing out this publication regularly.





Preparatory tillage practices: For timely kharif sowing preparatory tillage operations were initiated from the month of May itself. However, due to continuous rains soil wetness the layout preparation and sowing operations were delayed. Meanwhile, the fields got covered with weeds, therefore the cultivation with tractor was carried out to turning down the weeds to make fields ready for sowing.



Sowing in General Fields: Soybean was sown general fields B2, B5-6, B7, D3, D4, D5-6, E5, E6 and E7-8 totaling area 3.0 ha. Maize for fodder was sown in 0.5 ha area (B8 and E9) fields with requisition from animal section. The sowing was carried out with the help of tractor drawn mechanical seed drill. As it was raining intermittently only two fields required irrigation after sowing. Basal dose of fertilizer was also applied.

Experimental Sowing: Experimental fields C5, C7 & C8 were also made ready for sowing by making ridges and furrow layout. The sowing of soybean, pigeon pea and maize was carried out in field C5. Soybean germplasms were sown in C7 and C8 field.

Field B1 was prepared for sugarcane planting. Furrows were prepared at the spacing of 4'6" with the help of ridger and transplanting of seedlings was carried out.

Maintenance of kharif crop: Crops sown during last month and those sown in early July required attention for weed management. In Mungbean (D1) and Soybean (C6), manual weeding was initiated but the weeds were growing vigorously due to intermittent rains. Therefore, spraying of Quizalofop Ethyl 5% EC weedicide @ 1ml L⁻¹ was taken up and good control of grassy weeds could be achieved.

Irrigation and other activities: As whole month exhibited intermittent rains, not much irrigation required. However, the lift irrigation system was operated to fill the water balancing tank for use in orchards and landscape during dry spell. The fish tanks were also filled in anticipation of water requirement for fishery experiments.

Mulcher equipment was used to shred agro wastes for composting purpose.



Canopy management in Orchard: Pruning in mango orchard was carried out for skirting, opening up and hygiene purpose. Lower branches to the height of 75 cm were removed to facilitate regular manual operations like soil pulverizing, manure & fertilizer application. The branches growing out beyond 125 cm radius circle were pruned for ease in machinery movement for tillage and spraying. Further the center portion and criss-cross branches were removed for enhanced ventilation and sunlight penetration inside the canopy.

Lateral shoots on main cane and sub-cane in grapes were removed to make the canopy sparse enough to tackle biotic stresses due to prolonged rainy and humid weather.

Diseased branches and fruits in pomegranate were removed and destroyed to manage oily spot and fruit borer.



Plant Protection Measures: Due to continuous rainy and humid conditions; disease infections were a major threat during this period.

- Biological control agents like *Trichoderma harzianum*, *Pseudomonas fluorescens*, *Beauveria anisopliae* and *Metarhizium bassiana*, were procured and used to spray twice in grape, pomegranate and dragon fruit to take care of major pests and diseases
- Looking for heavy infestations of oily spot in pomegranate spraying of copper hydroxide was done
- Anthracnose and downy mildew were seen to proliferate, therefore one spray of copper oxy chloride and another of Metiram + Pyraclostrobin was done.
- After pruning mango plants were sprayed with copper hydroxide

Gaps filling: Half of the field in dragon fruit orchard with various species was not planted previously for the want of planting material. New nursery plants were raised for the purpose and plantation was carried out.

Gap filling was also carried out in mixed fruits and forest tree plantation block near admin building. Mango plants were procured from local nursery and about 90 mango saplings were planted. While plants like neem, karanj, were raised at institute.

Harvesting and disposal of produce: Acid lime, sweet orange harvested during this month. The produce was sold initially at campus itself. Fortunately, APMC market was open during this month for maximum period; therefore the balance material could be sent to market.

The first flush of dragon fruits is at ripening stage and few fruits were harvested during last week. The fruits were of very good quality though little in size.



South Farm

- The area being rain shadow, there is a history of dry spells during kharif season. Though presently its raining above average, it is necessary to stay prepared for irrigation during dry spell if any.
- Weed management will be big challenge during next month; integrated weed management have to be implemented through hand weeding, machinery use and use of herbicides. Herbicides have been already procured for used in the fields, along the roads and open areas.
- Experimental sowing of maize, sunflower and planting of sugarcane have to be completed in first week of next month.
- Field preparation for experiment on rabi onion will be started by incorporation of green manure crop dhaincha.
- All the agro-wastes are to be segregated thoroughly and shredded for composting purpose.
- Drainage channels are to opened along field sided for early removal of rain water from experimental fields.
- Developments in three umbrella projects are to be looked after as suggested by PIs. Planting of vegetable seedling in farming system, multiplication of abiotic stress tolerant germplasm in biodiversity project are to be taken care of.



North Farm

- Pomegranate is in fruit development stage and for better fruit development new shoot growth and suckers will be removed time to time. Simultaneously, twigs and fruits damaged by pest and disease will be removed and destroyed.
- Acid lime and sweet orange fruits are ready for harvest and it will be carried out looking in to maturity. As soon as harvesting is over trees will be trimmed by removing lower shoots and opening canopy for plant health management.
- In date palm there is lot of side shoot development. These shoots will removed manually and aged one will be used for growing in nursery to develop saplings.
- Due to continuous rains and humid weather the drumstick crop is adversely affected. Damaged fruits will be removed and better one will be collected for seed purpose. Its germination to be tested through sample sowing. Training of plants will be cut cris-cross and dense branches, limiting the height. Planting of new saplings will be carried out in I5 field.
- In dragon fruit field H5, support structures will be fixed and earthing up to be carried out to better growth.
- To harness grape shoot vigour tipping to be carried out at 12-15 leaf stage.





Weed management

Due to continuous rains since June 2020, there will be a big challenge of weed management in fields, utility areas, road sides and open areas. Integrated weed management will be required to tackle this biotic stress. Weeds in field crops and orchards lead to competition for available resources like water and nutrition. It harbors various pests and diseases as secondary host and become source of inoculum to infect main crops. Therefore, timely control of weeds is necessary from plant health point of view. Weed management to be achieved through following ways;

- **Manual weeding:** This is a common practice of weed control that pulverizes upper soil layer and improve plant growth, But is is laborious and takes lot of time to complete the operation.
- **Cultivation practices:** Hoeing, inter-cultivation with machinery are fast and can be used with some limitations. These are effective in broader row to row spacing and orchards very easily.
- **Use of herbicides:** Various selective and non-selective herbicides are available for killing weeds. For soybean, grassy weeds will be controlled effectively by Quizalofop Ethyl 5% EC @ 1ml L⁻¹



Cane Maturity Issues in Grape

Present phenological growth stage of grape is leaning towards shoot development to cane maturity. The prolonged cloudy weather may delay cane maturity; is a matter of concern because it directly affect fruit bud development and food storage in grapevine. Following measures are required to tackle this situation;

- Canopy management in grape is an important aspect from the point of plant health, food storage and cane maturity. Open up the canopy by removing all the lateral shoots on main cane and sub-cane so as to get full advantage of available diffused sunlight under cloudy conditions. Shoot tipping have to be carried out at 12-leaf stage to control shoot growth.
- Soil application of sulphate of potash and magnesium sulphate is recommended to fulfil nutrient requirements at this stage.
- Spraying of magnesium sulphate and potassium sulphate @ 5g L⁻¹ each, twice at the interval of 10-days will help in correcting nutrient deficiency when there are limitations on fertilizer application through soil or drip irrigation.
- Spraying of Bordeaux mixture 1% will help to control anthracnose and downy mildew infection besides advancement of cane maturity.



***Hylocereus undatus*- a fact sheet**

Hylocereus undatus i.e. dragon fruit is still a new introduction to India and lot of experimentation is underway at institutes and farmer level. Day by day the enquiries about dragon fruit cultivation, production, market, etc. are increasing. In view of this, some facts have been compiled here to get hands on information of *H. undatus* to address various issues related to its cultivation.

Introduction

- *Hylocereus undatus* (Haw.) Britton & Rose is a climbing vine cactus species of the family Cactaceae.
- It is one of 15 accepted *Hylocereus* species; while many of these have ornamental value because of their flowers, only five are important as fruit producers.
- Common names such as 'dragon fruit', 'pitaya' and 'pitahaya' are generic terms which include several species of columnar and climbing cacti. They are often applied to species other than *H. undatus* too and usually refer to the fruits rather than plant.
- It is native to southern Mexico, the Pacific coast of Guatemala, Costa Rica, and El Salvador. It is now commercially cultivated and widely distributed throughout the tropics and some temperate regions.
- It was introduced to Sri Lanka in 1997, from where supposed to entered in India.
- *Hylocereus undatus* is a fast growing, epiphytic or xerophytic, vine-like cactus.
- Stems are triangular, 3-sided, although sometimes 4- or 5-sided, green, fleshy, jointed, many branched. Each stem segment has 3 flat wavy ribs and corneous margins may be spineless or have 1-3 small spines.
- Stems creeping, sprawling or clambering, up to 10 m long. Aerial roots, which are able to absorb water, are produced on the underside of stems and provide anchorage for stems on vertical surfaces.
- Flowers are 25-30 cm long, 15-17 cm wide, nocturnal, scented and hermaphroditic; however, some cultivars are self-compatible.
- Flowers are typically white in colour and bell shaped, stamens and lobed stigmas are cream coloured.
- Fruit is a fleshy berry, oblong to ovoid, up to 6-12 cm long, 4-9 cm thick, red with large bracteoles, pulp white, edible, embedded with many small black seeds.
- Average fruit weight is 350-400 g, although may weigh up to 900 g.



Growth Requirements

- *H. undatus* grows as a climbing cactus in shaded or semi-shaded positions under large canopies, it may be injured by extreme sunlight and can tolerate some shade; however, it is considered to be a full sunlight crop in Central and South American countries.
- When growing naturally, it attaches branched stems to trees or rocks via adventitious roots. Under cultivation the vine-like stems are supported by a post and trellis system.
- Optimum temperatures for growth are 18-25°C, with good relative humidity levels.
- Dragon fruit, while being a type of cactus, perform poorly under extremes of temperature and cannot tolerate high light and temperature.
- *H. undatus* is tolerant of windy conditions and moderately saline soils.
- Like many cacti, it has a low water demand, which is related to its crassulacean acid metabolism (CAM) mode of photosynthesis - uptake of CO₂ occurs during the night when the stomata are open, which restricts water loss via transpiration during the heat of the day. Due to this during hot summer there is no cooling effect that results in to sunburn damage to the leaves.
- In high radiation areas, overhead shading is often installed, which also helps reduce extremely high temperatures which can limit flowering and fruit set.

Horticultural Aspects

- *Hylocereus undatus* is a perennial long-lived plant. In cultivation it starts fruit production from the second year onward.
- It is a day length sensitive plant and flowering is induced by longer days. In India flowering occurs from June to October while in Sri Lanka it flowers from April to November.
- It has hermaphroditic flowers. They open at night and nocturnal visitors include the nectar-feeding bats and the moths are main pollinators of this species.
- Sometimes the flowers remain open the next morning and are also visited and pollinated by bees.
- It has a mixed breeding system in which selfing and outcrossing set fruits. Hand pollination is also used with self-incompatible varieties to ensure good fruit set and fruit size.
- Many new commercial operations are utilising new cultivars which are self-fertile to avoid the cost of hand pollination. Many of the varieties bred in Asia are now self-compatible and will set fruit relatively easily without requiring hand pollination.
- The main disadvantage with many of the self-compatible varieties of dragon fruit is that the fruit is often smaller than if the flowers were cross-pollinated with pollen from a different clone or different species. This may be due to fruit weight, which is positively correlated with the number of viable seeds and dependent on pollination.
- Hand pollination is carried out by removing the anthers from one flower and brushing them against the stigma of another flowers.
- Commercial growers have to determine if it is worthwhile hand pollinating flowers in order to obtain a greater fruit weight, given the cost on increased labour on the background of larger fruits.
- Often the first wave of flowers will not set fruit in self-incompatible varieties that can be tackled by hand pollination.
- Pollen collected from dragon fruit flowers can be stored after drying to a moisture content of 5-10% and below-freezing temperatures for 9 months to pollinate the first blooms of the season, resulting in an earlier and larger crop.

- Commercial dragon fruit growers in Taiwan use supplemental night break lighting to increase the flowering period after the normal period of flowering has finished. Flowering is induced by breaking the dark period with lighting between 22:00 and 02:00 hr. These Fruits produced in the off-season often receive premium prices as they are larger and sweeter than those produced from summer crops.

Pest and Diseases

- In many dragon fruit cultivation regions, fruit flies are a major pest affecting fruit quality. Oriental fruit fly (*Bactrocera dorsalis*) and guava fruit fly (*B. correcta*) are species that both lay eggs in fruits and the larvae can develop successfully even when the fruits are too green to eat.
- Aphids may infest flowers or fruits in some regions and young plants can be vulnerable to slugs and snails under damp conditions.
- Rabbits, squirrels, possums and similar pests have been known to feed on the lower stems and mice, rats and birds will eat ripe fruits.
- In Madhya Pradesh, Rajasthan and Gujarat, it is reported that monkeys are big nuisance as it feeds on leaves.
- Diseases like stem rot caused by *Xanthomonas campestris* and brown spots on fruits caused by *Dothiorella* in some production areas.
- Viruses such as Cactus virus X (CVX) have been reported on dragon fruit plants, causing symptoms such as stunted, malformed and mottled growth. In Taiwan, CVX is widespread in dragon fruit orchards, with infection rates of 60-90%.
- A strain of *Fusicoccum* has been isolated from stems of *H. undatus* and is also a host to quarantine significant rust.



पारिजात (*Nyctanthes arbor-tristis*)

पारिजात उन प्रमुख वृक्षों में से एक है, जिसके फूल ईश्वर की आराधना में महत्वपूर्ण स्थान रखते हैं। इसे प्राजक्त, परिजातक, हरसिंगार, शेफालिका, शेफाली, शिउली भी कहा जाता है। अंग्रेजी में इसे नाइट जेस्मिन और उर्दू में इसे गुलज़ाफरी कहा जाता है। पारिजात का पौधा असम, बंगाल, मध्य प्रदेश, राजस्थान एवं गुजरात आदि राज्यों में पाया जाता है। भारत के उपहिमालयी क्षेत्रों में 300 से 1000 मीटर की ऊंचाई पर पारिजात का पौधा मिलता है। यह एक झाड़ीदार पेड़ है जो 10 मीटर ऊँचा होता है, जिसमें परतदार धूसर छाल होती है। पत्तियाँ विपरीत, सरल, 6-12 सेमी लंबी और 2-6.9 सेमी चौड़ी होती हैं। फूल सुगंधित होते हैं, वे दो से सात के समूहों में एक साथ पैदा होते हैं तथा उनकी नारंगी-लाल केंद्र के साथ पांच से आठ सफेद पंखुड़ियाँ होती हैं। इनके फूल शाम को खुलते हैं और सुबह भोर में खत्म होते हैं। फल एक सपाट भूरे रंग का, दिल के आकार का, 2 सेमी व्यास का गोल कैप्सूल होता है, जिसमें प्रत्येक लोब में एक एकल बीज होता है।

औषधीय गुण

पारिजात का फूल हल्का, रूखा, तिक्त, कटु, गर्म, वात-कफनाशक, ज्वार नाशक, मूत्र विरेचक, शामक, उष्णीय और रक्तशोधक होता है। इसके फूलों में सुगंधित तेल होता है। रंगीन पुष्प नलिका में निक्टैन्थीन नामक रंग द्रव्य ग्लूकोसाइड के रूप में 0.1 प्रतिशत होता है, जो केसर में स्थित ए-क्रोसेटिन के सदृश्य होता है। बीज मज्जा से 12-16 प्रतिशत पीले भूरे रंग का स्थिर तेल निकलता है। पत्तों में टैनिन एसिड, मेथिलसेलिसिलेट, 1-ग्लाइकोसाइड (1 प्रतिशत), मैनिटोल (1.3 प्रतिशत), कुछ उड़नशील तेल, विटामिन सी और विटामिन ए पाया जाता है।

पारिजात में औषधीय गुणों का भण्डार है। यह माना जाता है कि पारिजात के वृक्ष को छूने मात्र से ही व्यक्ति की थकान मिट जाती है। पत्तों के साथ इसके फूल में भी चिकित्सीय गुण होते हैं। हरसिंगार के फूल आँखों की समस्या में फायदेमंद होते हैं साथ ही पारिजात भूख को बढ़ाने और अन्य पाचन संबंधी विकारों को दूर करने में प्रयोग किया जाता है। पारिजात बवासीर रोग के निदान के लिए रामबाण औषधी है। इसके फूल हृदय के लिए भी उत्तम औषधी माने जाते हैं और सायटिका रोग को दूर करने का भी इसमें विशेष गुण होता है। इतना ही नहीं पारिजात की पत्तियों को पीस कर शहद में मिलाकर सेवन करने से सूखी खाँसी ठीक हो जाती है। इसी तरह पारिजात की पत्तियों को पीसकर त्वचा पर लगाने से त्वचा संबंधी रोग ठीक हो जाते हैं। पारिजात की पत्तियों से बने हर्बल तेल का भी त्वचा रोगों में भरपूर इस्तेमाल किया जाता है। पारिजात के बीज जहाँ बालों के लिए शीरप का काम करते हैं तो इसकी पत्तियों का जूस क्रोनिन बुखार को ठीक कर देता है।



Parijat flowers have an important place in the worship of God. It is also called Prajakta, Harsingar, Shefalika, Shefali, Shiuli. In English it is called Night Jasmine and in Urdu it is called Gulzafari. The plant of Parijat is found in the states of Assam, Bengal, Madhya Pradesh, Rajasthan and Gujarat etc. Parijat plant is found in sub-Himalayan regions of India at an altitude of 300 to 1000 meters. It is a shrub tree that is 10 meters tall, with a flaky gray bark. Leaves are opposite, simple, 4-12 cm long and 2-4.5 cm wide. The flowers are fragrant, they grow together in groups of two to seven and have five to eight white petals with an orange-red center. Their flowers open in the evening and end at dawn. The fruit is a flat brown, heart-shaped, 2 cm diameter round capsule, with a single seed in each lobe.

Medicinal properties

Parijat's flower is light, dry, thick, bitter, hot, vata-destroyer, sedative, thermogenic, and hemorrhagic. It has a wealth of medicinal properties. It is believed that by mere touching the tree of Parijat, a person's fatigue is eliminated. Along with the leaves, its flower also has therapeutic properties. Harsingar flowers are beneficial in eye problems as well as Parijat is used to increase appetite and remove other digestive disorders. Parijat is a panacea for the diagnosis of piles. Its flowers are also considered to be the best medicine for the heart and it also has special properties for curing cytica disease. Not only this, by grinding the leaves of Parijat mixed with honey, dry cough is cured by taking it. In the same way, skin related diseases are cured by grinding the leaves of Parijat on the skin. Herbal oil made from the leaves of Parijat is also used extensively in skin diseases. When the seeds of Parijat work as a tonic for hair, the juice of its leaves cures chronic fever.

प्रगति के पथ पर

‘अम्बिया बहार’ मोसम्बी की फसल कटाई के लिए तैयार हो रही है और फलों की बाजार में अच्छी मांग भी है। ड्रैगन फल भी पक्वता की अवस्था पर हैं और इस सीजन की पहली फसल कटाई शुरू हो चुकी है। इसका उत्पाद ५ से ७ पुष्पण बहारों से नवंबर माह तक मिलता रहेगा। इस बार फलों की गुणवत्ता अच्छी है और आगे लक्ष्य यह है कि इसे फल मक्खी के संक्रमण से बचाया जाए। खरीप का मौसम जारी है और कई क्षेत्र में बुवाई पूरी हुई है। लगातार बारिश और उमस भरे मौसम के कारण खरपतवार प्रबंधन, कीट और रोग प्रबंधन सबसे बड़ी चुनौती है। उर्वरकों, कृषि रसायनों और जैविक नियंत्रण हेतु सामग्री का भंडारण आश्वस्त किया गया है। छिड़काव तथा जुताई के उपकरण जैसे सभी आवश्यक मशीनरी सेवा के लिए दुरुस्त हैं और सुनिश्चित लक्ष्यों को प्राप्त करने हेतु प्रक्षेत्र प्रभाग तैयार हैं।

वैज्ञानिक प्रयोग और तकनीकों को लागू करने का तरीका वैज्ञानिकों के विचार क्षेत्र में आता है। हालाँकि, तकनीकी कर्मचारियों को भी इस बात की समझ होनी चाहिए कि कृषि कार्यक्रम प्रायोगिक डेटा को कैसे प्रभावित करते हैं, कौन से कृषि कार्यक्रम प्रायोगिक त्रुटि का प्रमुख स्रोत हो सकते हैं और इस तरह की अनपेक्षित त्रुटियों से कैसे बचा जा सकता है। इष्ट दृष्टिकोण के लिए प्रयोगात्मक प्रक्रियाओं के प्रति प्रक्षेत्र विभाग के तकनीकी कर्मचारियों को शिक्षित करने की योजना बनाई गई है। जिसमें भविष्य में कई लेख लिखे जाएंगे तथा वैज्ञानिकों के साथ संवाद बढ़ाया जाएगा। उनकी जरूरतों की पूर्ति हेतु योजना बनायी जाएगी। इस सीजन में यह अनुभव किया गया है कि संसाधनों के आपूर्ति होने के बावजूद भी मौसम की स्थिति लक्षित उपलब्धियों में कैसे देरी ला सकती है। यह समझना भी जरूरी है कि एकीकृत दृष्टिकोण के साथ ऐसी परिस्थितियों से कैसे निपटा जाए।

Plan For Progress

Sweet orange harvest of ‘ambia bahar’ is in progress and fruits are having good demand in market. Dragon fruits are at maturity and harvest of the first flush of this season is already started. Fruit quality is good and target ahead is to protect it from fruit fly infestation. *Kharif* season is on the way and due to continuous rainy and humid weather, weed management, pest and disease management is the biggest challenge ahead. The required inputs like fertilizers, agrochemical and biological control agents are already been procured. All required machineries including sprayers and tillage equipments are maintained well serviced and farm is all set to achieve illustrated targets.

The manner of conducting an experiment and scientific techniques to be applied fall within a scientist's domain. However, technical staff too should have an understanding of how field operations impact experimental data, which field operations can be major source of experimental error and how such unintended errors can be avoided. From this point of view it has been planned to educate farm technical staff with experimental procedures. It has been experienced that in spite of resources in hand, weather conditions may delay targeted achievements. It is to understand, how to tackle such situations with integrated approach.



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