



# FARM COORDINATOR

... कृषि तकनीकी समन्वय पत्र



भाकृअनुप - राष्ट्रीय अजैविक स्ट्रेस प्रबंधन संस्थान

ICAR-NATIONAL INSTITUTE OF ABIOTIC STRESS MANAGEMENT

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## निदेशक के लेखनी से...

अक्तूबर माह में परिसर में बारिश का (283 मिमी) अच्छा प्रदर्शन रहा तथा वार्षिक कुल वर्षा 1000 मिमी के अंक को पार कर गई। यह खुशी का क्षण है लेकिन इसने क्षेत्र के कामकाज पर प्रतिकूल प्रभाव डाला है और पादप स्वास्थ्य प्रबंधन पर अतिरिक्त भार डाला है। पिछले माह की उपलब्धियों तथा अगले लक्ष्य को देखते हुए, समझा जा सकता है की यह समय विभिन्न कृषि गतिविधियों के साथ व्यस्त लगता है। खरीप फसलों की कटाई और श्रेथिंग कार्य प्रगति पर है और साथ ही रबी फसलों की बुवाई की तैयारी को विवेकपूर्ण तरीके से प्रबंधित करना होगा। विशेष रूप से परिसर में फल मक्खी खतरे के लिए एकीकृत कीट प्रबंधन पर प्रयास तेज करना होगा। अनार में 'हस्त बहार' के लिए तथा अंगूर में फल हेतु छंटाई को पूरा किया गया है। विकास नियामकों, पोषण और कीट-रोग प्रबंधन के साथ सभी बागों में चंदवा प्रबंधन प्रथाओं को बहुत सावधानी से देखा जाना चाहिए। 'फार्म कोऑर्डिनेटर' के सभी खंडों को समझते हुए, यह देखा गया है कि जलवायु परिवर्तन की पृष्ठभूमि पर क्षेत्र की गतिविधियों और बागवानी प्रथाओं में सुधार की बहुत गुंजाइश है। इसलिए, मैं सुझाव देता हूँ कि हर फसल पर एक-एक करके कार्य करना चाहिए ताकि खेत में दिन-प्रतिदिन की गतिविधियों को कुशलतापूर्वक प्रबंधित किया जा सके, जो कि 'अनुसंधान फार्म प्रबंधन' में बेहतर समन्वय के लिए बहुत महत्वपूर्ण है।

मुझे पूरी उम्मीद है कि यह प्रकाशन वैज्ञानिकों, शोधकर्ताओं और कृषि कर्मियों को अपने समन्वय में सुधार करने में मदद करेगा। मैं डॉ. प्रविण भिमदेव तावरे, वरिष्ठ तकनीकी अधिकारी तथा इस उपयोगी प्रकाशन में योगदान देने हेतु सभी को बधाई देता हूँ।

## From Director's Desk...

Month of October exhibited good rains at campus (283 mm) and the total rainfall crossed 1000 mm mark. This is happy moment but it has influenced field operations adversely and had put extra load on plant health management.

Looking in to achievements and targets section of this issue, it seems to be a busy time with various farm activities. The harvesting and threshing of kharif crops is in progress and preparations for rabi crops sowing have to be managed judiciously. The efforts on integrated pest management particularly for fruit fly menace at campus have to be intensified. Forward pruning in grape and pruning for 'hasta bahar' in pomegranate have been completed. Canopy management in orchards along with use of growth regulators, nutrition and pest-disease management have to be looked after very carefully. While going through all the issues of 'Farm Coordinator', it is noticed that there is lot of scope to reschedule field activities and horticultural practices on the background of changes in climate. Therefore, I suggest working on it crop by crop so as to manage day to day activities at farm efficiently for better coordination in 'Research Farm management'.

I sincerely hope that the publication will help the researchers and farm personnel to improve their coordination. I congratulate Dr. Pravin Bhimdeo Taware, Senior Technical Officer & other contributors for bringing out this useful publication.



*Pravin*

अक्तूबर / October 31, 2020

हिमांशु पाठक / Himanshu Pathak

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**Pruning in pomegranate:** Pruning for Hasta bahar in pomegranate was carried out on 22/10/2020 (J3) and 23/10/2020 (K5). Due to continuous rains last month, desired moisture stress could not be given for complete defoliation. Therefore, 10-days before pruning Ethephon 1200ppm was sprayed to achieve required defoliation. Immediately after all the debris was removed from field and disposed by burning. Copper hydroxide @ 2g/L and streptomycin sulphate 0.5 g/L were sprayed as a prophylactic spray to minimize inoculum load in the orchards.

**Pruning in grape:** Forward pruning in grape (J-5 Sharad seedless) was carried out on 22-23/10/2020. Very little defoliation was required before pruning because almost all the leaves were dropped due to continuous rains. There was issue of cane maturity after sub-cane pinching. A thumb rule for pruning at 9-10 eye-buds position was made based on bud and internode length observations. The workers were trained accordingly to take the cut not far away or close to the retained bud. All the green portion, petiole and tendril remains were removed carefully during the pruning. Hydrogen cyanamide @ 2% was used to paste 3 terminal buds and proper pasting was monitored by adding red colour to the paste formulation. Simultaneously, loose bark on grape vine stems was removed as a first step of integrated pest management. All the debris of pruning was removed from the vineyard and disposed of by burning. Immediately after pasting prophylactic spraying of Copper hydroxide 2g/L + wettable sulphur 2g/L was carried out to get rid of pathogen inoculum on pruned vines.

**Farm produce harvesting and threshing of soybean:** Harvesting of soybean crop from general and experimental fields was carried out looking in to dry spell during first fortnight and during last week of the month. General soybean crop was machine threshed after sufficient drying of the pods.

Fruits like Acid lime, dragon fruit, custard apple, sweet orange and amla were harvested during this period. The farm produce was sold through sale counter at farm and surplus produce was sent to APMC, Baramati. Revenue of Rs.8267/- have been generated during October 2020 totalling Rs. 2,27,190/- since April 2020.



Pruning in Pomegranate orchard

**Taking pits in Tamarind field:** Agroforestry scientist wanted starting multiple cropping in tamarind field for which he had requisitioned for machinery for digging pit. The work of pit digging was facilitated through 75hp tractor having earth moving apparatus attached. Pits were taken as per treatments designed by the scientist.

**Resolving drainage issues:** Heavy rains were experienced during this month leading to accumulation of water in fields, orchards and on roads. A plan was made to drain out run off water to collect in natural pond at three locations in campus. Excess water was diverted to adjoining *nala* through natural water channel that was closed due to boundary constructions. This was required to prevent probable damage to boundary wall structure due to water.

**Peripheral maintenance:** Training pruning of the plants along periphery was carried out on fortnightly basis. Damaged leaves of coconut were removed and used for composting after proper shredding. Weed management along peripheral road was executed by used herbicide spray.

**Farm waste disposal:** As suggested in 2<sup>nd</sup> Farm Advisory Committee Meeting, the arrangements of farm waste disposal were reorganized. The fallen fruits were disposed of by burring in pit, for which a pit was taken at isolated place.



Threshing of Soybean crop

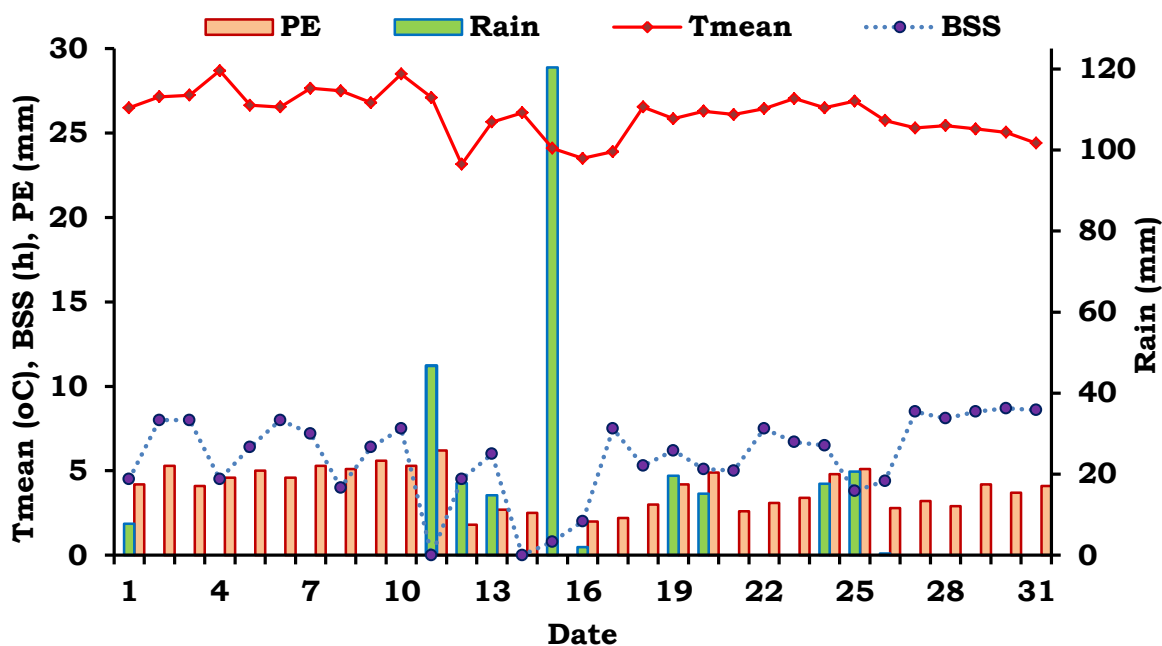
**Weather Summary of October 2020 at ICAR-NIASM**

Mr. Sunil V. Potekar & Mr. R.N. Singh

The long period average (LPA) of October rainfall and average temperature at Baramati is 101.0 mm and 26.4 °C, respectively. The details of weather during the October 2020 has been listed in Table 1 and depicted in following figure.

**Table 1.** Summary of weather variables recorded during October, 2020.

Weather Parameters	Week				Monthly	Max.	Min.
	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>			
T Max (°C)	32.9	32.0	29.2	31.2	31.3	34.4	25.5
T Min (°C)	21.5	20.9	21.2	21.2	20.9	23.2	17.7
T Avg (°C)	27.2	26.4	25.2	26.2	26.1	28.7	23.2
RH Mean (%)	66	76	83	75	74	96	57
WS (km/h)	5.9	5.5	6.6	4.7	5.5	11.6	3.3
BSS (h)	6.7	4.1	4.6	6.5	5.8	8.8	0.0
Total PE (mm)	33.1	29.2	18.9	25.3	118.5	6.2	1.8
Total Rain (mm)	7.8	79.4	157.2	38.6	283.0	120.6	-



**Fig.** Variations of daily pan evaporation (PE), rainfall (Rain), mean temperature ( $T_{mean}$ ) and bright sunshine hours (BSS) during October, 2020 at ICAR-NIASM Baramati.



**South farm experimental field works:**

There will be a hectic schedule during first half of Nov 2020 being the transition period of kharif and rabi seasons. The first priority is of completing harvesting and threshing of experimental kharif crops and disposal of produce of the last season. Simultaneous top priority also to be given for field preparation for *rabi* season, sowing of chickpea and wheat in general fields and sowing of various experimental *rabi* crops.

**Post-pruning viticulture operations:**

Forward pruning in Thomson seedless grape is due, though delayed due to delayed rains, it is to be completed during first week. Post-pruning operations include shoot thinning, which is important and time-bound. It has to be completed as soon as miniature flower bud becomes visible between 3-leaf and 5-leaf stages generally 15-18 DAP (days after pruning) to avoid depletion of food storage in the canes. Spraying of GA3 @ 10ppm for bunch elongation at pre-bloom stage (18-21 DAP) needs to be carried out when the flower bud turns parrot-green colour.

**Canopy management in Orchards:** Training and pruning in orchards is an important operation required to be done on regular basis. This month Karonda, Drumstick, Dragon fruit, Acid lime and Date palm orchards are prioritized for canopy management.

- Karonda plants were not trained for long period and access to orchard was becoming difficult for irrigation, supervision and harvesting purpose. Therefore, a recut will be given to make the plants bushy, to increase productive unit and to make the orchard accessible.
- Pruning in drumstick for getting ratoon crop. The tertiary branches will be cut leaving 30-45 cm portion at the height of 1.5m. This will induce new shoot growth.

- Dragon fruit season is almost over. From by mid-November the dense canopy units i.e. over-growth and over-crowding shoots will be removed. Field experiment on canopy management in dragon fruit can be initiated from this pruning onwards.
- Acid lime plants need skirting i.e. cutting of lower branches to make ease in field operations and removal of more vigorous water shoots.
- The sucker shoots from date palm trees are to be removed carefully without harming the plants. The suckers will be used for planting in nursery for preparation of true to type saplings.

**Plant protection in Orchards:**

- Grape: Prophylactic spraying of systemic fungicides during early phase of shoot and during flowering is mandatory for control of downy mildew and powdery mildew diseases. In case of insect pests; flea beetle, thrips and jassids is a main issue during early period.
- Pomegranate: Being oily spot prone area, frequent spraying for its management is necessary by using copper fungicides along with antibiotics i.e. Copper hydroxide @ 2g L-1 + wettable sulphur @ 2 g L-1. During early growth period thrips causes unrecoverable scars on tender fruits that subsequently leads to cracking.
- Guava: Fruit borer and fruit fly are important insect pests causing economic damage near harvest. In case of disease Anthracnose causes lot of damage during fruit growth period.
- Drumstick: Leaf eating caterpillar on young shoots after ratoon pruning to be looked after carefully.
- Sweet orange: Brown rot caused by *Phytophthora*. Skirt spraying of Bordeaux mixture 1% followed by spraying of Fosetyl Al @ 2g L-1 after 10-days.



Forward pruned Sharad seedless grape



Soyabean crop sun-drying after harvest

## Plant health management under Abiotic stress conditions

Overall time-table of seasonal sowing of field crops or *bahar* initiation in fruit crops is required to be rescheduled under the changing climate change scenario. Therefore, it is utmost necessary to design the cultivation practices for sustainable crop production through plant health management.

**Water Management:** Moisture stress to water logging are important issues in plant health management. Last two years it became difficult to impose water stress as *bahar* treatment to induce flowering in pomegranate. There were issues of cane maturity in grapes. Crop losses due to dry spells after sowing and crop submergence particularly near harvest were major issues. Under such situation water management is going to play an important role in plant health management.

**Nutrition Management:** Leaching of nutrients due to heavy rains have to be compensated through foliar application and fertigation is much required to overcome deficiencies causing physiological disorders in plants.

**Disease and Pest Management:** The plant disease and pest severity index based on 'disease triangle' i.e. host susceptibility, pathogen inoculum and environment, is changing with climate change. There spray schedules and other cultural operations for Integrated Pest and Disease Management are

required to be devised based on changed scenario. Biological control agents have to preferred than chemical control methods to reduce the cost on plant health management.

**Weed Management:** The unseasonal rains during growing season are worsening weed problem in crops day by day. The sowing period in case of field crops exhibit more diversions from recommended one. Due to this type of weeds, window for intercultural operations and herbicide efficacy also gets affected. The time delay and cost involvement in weed management is increasing gradually affecting production economics. Therefore, it is important to restructure all the cultivation practices right from sowing/ planting for judicial weed management.

Looking into this, it very much necessary to reschedule broad aspects like time of sowing for each crop or time of pruning in case of orchards. It will be helpful in planning the whole production season and also to exhibit treatments in research farm.



Spraying operation in progress

### Recommendations of Farm Advisory Committee:

The third meeting of FAC was held on Oct 7, 2020 to discuss issues for farm improvement.

- Recommendations of 2<sup>nd</sup> FAC were confirmed and those due have to be completed soon.
- Field allotment for *rabi* season was carried out on the basis of field availability and requisitions received. The allotment details were circulated to all for information.
- As the soybean crop sown during *kharif* season is at maturity, the harvesting of the crops to be completed and preparations for sowing of *rabi* crops to be started immediately.
- Whole farm needs application of organic manures therefore the procedure for procurement of Farm Yard Manure to be initiated by placing indents based on probable requirements.
- Procurement of seeds and other inputs is required to be ready for *rabi* season sowing.
- Nursery facility for stakeholders to be extended by raising some more plant species of fruit trees and ornamental plants for sale.
- Development of area near parking for butterfly park to be done with availability of murum.
- Development of space for storing soils imported from coastal area for experiments on salinity tolerance by putting murum at one of the shade net house.

## Canopy Management in Pomegranate

Canopy of a tree refers to its physical composition comprising the stem, branches, twigs and leaves. But the canopy density is determined by the number and size of leaves which is measured as LAI (Leaf Area Index). Moreover, canopy architecture has significant impact on fruit production which is determined by the number, length and orientation of branches and shoots. In any fruit crop, for optimum fruiting and quality fruit production, the canopy management of the tree is prerequisite that deals with the development and maintenance of their structure in relation to the size and shape.

- The basic idea of canopy management is to manipulate the tree vigour and use maximum available light and temperature to increase productivity, fruit quality and also to minimize the adverse effects of the weather.
- Pomegranate is a light loving plant thus enough light should be available in the tree canopy for quality fruit production. The green leaves trap the sunlight to produce carbohydrates which are then transported to the sites (buds, flowers, fruit etc.).
- Restricting the build-up of micro-climate congenial for the development of diseases and insect pests and convenience in carrying out the cultural operations are also important considerations in canopy management.
- Balance between vegetative and reproductive growth must be maintained giving emphasis to have less wood and more fruit on plant canopy.

**1. Tree growth and structure:** Pomegranate is a shrub or small tree that tends to develop multiple trunks and has a bushy appearance. Depending upon variety and agro-climatic conditions, it can grow up to 5 m. Most of the varieties are deciduous and in Deccan Plateau, the trees are evergreen or partially deciduous. The density and orientation of plants have impact on light penetration in the orchard. The closer the planting, the poorer will be light penetration. Strong bearing branches tend to produce larger fruits and they also transport water and nutrients more efficiently throughout the tree. Thus, pruning should aim to encourage new strong growth.

### **2. Training system:**

**Multi-stem training system:** In multi-stem training system, 3-4 strong stems with 6-8 strong fruiting branches (thick ones) are allowed to produce good quality fruits from fourth year. Multi-stem training system has some disadvantages that it complicates many cultivation practices such as pruning, spraying, removal of unwanted growth (suckers) and fruit harvesting.

**Single stem training system:** Recently, single stem training system in pomegranate has already been started in some countries like the USA and Israel because of its many advantages over multi-stem training system. It has been reported earlier that pomegranate is highly susceptible to stem borer and shot hole borer so not much emphasis was given on this training system in India.

Single trunk up to 30 cm (stem) with 3-4 main branches (limbs) in vase shape training up to 3.5-4 m is a common practice in modern orchards. Properly irrigated and fertigated orchards trained in this way often produce >30 tonnes fruit/ha. Undoubtedly, there seems to be scope for promotion of single stem training system in India as the canopy architecture in this system develops very well which is suitable for higher productivity and easy farm operations.

**3. Maintenance pruning of bearing trees:** A more regular programme of pruning starts from third year onwards with the following basic objectives:

- To remove dead, diseased, broken and weak or old branches
- To remove crossed over branches or branches in the wrong place.
- To reduce tree height and width
- To open up the tree canopy to improve light and air penetration
- To remove unwanted re-growth or strong suckers or suckers arising from the ground level
- To manipulate tree form, shapes and growth
- To manipulate flowering, fruit set and crop load
- To rejuvenate old trees
- To improve spray coverage
- Rejuvenation pruning is generally carried out in old or bacterial blight infected trees to improve their cropping potential.

## कचनार/ कठमुली/ The Sonpatta Tree (*Bahunia racemosa* Lam.)



कचनार (कठमुली) का पेड़/ The Sonpatta Tree

सोनपता या कठमुली एक छोटा, कुटिल, झाड़ीदार, पर्णपाती शाखाओं वाला पर्णपाती वृक्ष है, जो खराब और बहुत कठोर जलवायु परिस्थितियों में विकसित हो सकता है। यह पौधा सिद्दावा (तमिल), बनराज (बंगाली), आष्टा, कठमौली, कच्छल (हिंदी), अरलुकादुमंडारा (कन्नड़), यमलपतरकह, युगमपत्रा, अशमंतक, कांची (संस्कृत), आपटो (कोंकणी), ओम्बोरोडा (ओडिया), कोसुंदरा (पंजाबी), आपटा, सोना (मराठी) के नाम से प्रसिद्ध है। अन्य सामान्य नामों में माउंटेन एबोनी और कचनार शामिल हैं।

पेड़ आमतौर पर 6-12 मीटर की ऊँचाई तक पहुँचते हैं और उनकी शाखाएँ 3-6 मीटर बाहर की ओर फैलती हैं। इस जीनस बाउहिनिया के तहत अन्य महत्वपूर्ण संबद्ध प्रजातियों में बी. पुरपुरिया, बी. वेरिएगट, बी. मालाबारिका शामिल हैं। बी. रेसमोसा की छाल अंदर से काली, खुदरी, गुलाबी लाल रंग की होती है, जो फैलने पर भूरे रंग की हो जाती है। पत्तियाँ लंबे समय तक चौड़ी होती हैं, जिनका आकार 2-5 सेमी 2.5- 6.3 सेमी होता है, जो आधे से कम रास्ते को दो गोल लोबों में विभाजित करती हैं। पांच-पंखुड़ी वाले फूल 7.5-12.5 सेमी व्यास के विभिन्न रंगों के और अक्सर सुगंधित होते हैं। पेड़ देर से सर्दियों में फूलना शुरू करता है और अक्सर गर्मियों की शुरुआत तक फूलता रहता है। फली डंठलसहित 15-25 की संख्या में 1.3-2.2 सेंटीमीटर के आकार के होते हैं, जो कुछ हद तक फाल्केट, ग्लैब्रस, टर्गिड, स्कार्लेटयुक्त होते हैं। प्रत्येक फली में 12-20 गहरे लाल भूरे रंग के, आयताकार शीर्ष पर गोल बीज होते हैं।

### आर्थिक महत्व:

- कठमुली की पत्तियों का उपयोग बीड़ी बनाने के लिए किया जाता है, इस प्रकार पौधे को आमतौर पर बीड़ी के पत्ते के पेड़ के रूप में जाना जाता है। इसके अलावा, पौधे भेड़, बकरियों और मवेशियों के लिए अच्छा चारा बनाता है।
- फूलों का एपिकल्चर में बहुत महत्व है और करी में पॉट जड़ी बूटी के रूप में भी और अचार (चटनी) में बनाया जाता है।
- पेड़ एक उपयोगी गोंद और फाइबर पैदा करता है। छाल का उपयोग टैनिंग और रंगाई के लिए किया जाता है।
- इस पेड़ के लगभग हर हिस्से में कुछ औषधीय मूल्य होते हैं। कठमुली की छाल और पत्ते मीठे और तीखे, सर्द, कसैले होते हैं और इसका उपयोग सिरदर्द, बुखार, त्वचा रोग, रक्त रोग, पेचिश और दस्त के उपचार में किया जाता है। छालों के काढ़े को अल्सर के लिए एक उपयोगी होने के रूप में अनुशंसित किया जाता है। पेड़ में एंटी-ऑक्सीडेंट और हेपाटो-सुरक्षात्मक प्रभाव होता है। पत्तियों के एक अर्क को एनाल्जेसिक, एंटी-पाइरेटिक, एंटी-इंफ्लेमेटरी, एंटी-स्पस्मोडिक, एंटीहेलिमिंटिक और एंटीमाइक्रोबियल गतिविधि दिखाने के लिए साबित किया गया है। पेड़ में ट्यूमर रोधी गुण होते हैं और पहले चरण के कैंसर के इलाज के लिए आयुर्वेद में इसका व्यापक रूप से उपयोग किया जाता है।

*Bahunia racemosa* Lam is a small, crooked, bushy, deciduous tree with drooping branches, which can grow in poor and very harsh climatic conditions. The plant is popularly known as Sittacha (Tamil), Banraj (Bengali), Ashta, Katmauli, Kachnal (Hindi), Aralukadumandara (Kannada), Apto (Konkani), Omboroda (Odia), Kosundra (Punjabi), Apta, Sona (Marathi), Yamalapatrakah, Yugmapatra, Ashmantaka, Kanchini (Sanskrit). Other common names include Mountain Ebony and Kachnar.

The trees typically reach a height of 6-12 m and their branches spread 3-6 m outwards. The other important associated species under this genus *Bahunia* include *B. purpurea*, *B. variegata*, *B. malabarica*. The bark of *B. racemosa* is bluish black, rough, pinkish red inside, which turns brown on exposure. The leaves are broader than long, having size 2-5 cm by 2.5- 6.3 cm, divided a little less than half way down into two rounded lobes. Five-petaled flowers are 7.5-12.5cm diameter, in various shades are often fragrant. The tree begins flowering in late winter and often continues to flower into early summer. The pods are stalked, 15-25 in number having size of 1.3-2.2 cm somewhat falcate, glabrous, turgid, scarcely veined. Each pod contains 12-20 dark reddish brown, oblong, compressed, rounded at the apex.

### Economic Importance:

- The leaves of *B. racemosa* are used for making bidis, thus the plant is commonly known as bidi leaf tree. Also the plant makes good fodder for sheep, goats and cattle.
- The flowers are of much importance in apiculture and also as a pot herb in curries and made into pickle (chutni).
- The tree yields a useful gum and fibers. The bark is used for tanning and dyeing.
- Almost each and every part of this tree possesses some medicinal values. The bark and leaves of *B. racemosa* are sweetish and acrid, refrigerant, astringent and is used in the treatment of headache, fever, skin diseases, blood diseases, dysentery and diarrhea. A decoction of the bark is recommended as a useful wash for ulcers. The tree is demonstrated to have anti-oxidant and hepato-protective effects. An extract of the leaves has been proved to show analgesic, anti-pyretic, anti-inflammatory, anti-spasmodic, anthelmintic and antimicrobial activity. The tree has anti-tumor qualities and is widely used in Ayurveda to treat first stage cancer.



## प्रगति के पथ पर

इस महीने में परिसर में 283 मिमी बारिश हुई और 560 मिमी की वार्षिक औसत की पृष्ठभूमि पर कुल वर्षा 1000 मिमी के पार करने का रिकार्ड दर्ज हुआ। अक्टूबर 2020 क्षेत्र की फसलों और बागों को भारी बारिश से बचाने में व्यस्त था। सामान्य क्षेत्रों में सोयाबीन की कटाई किसी तरह पूरी की गयी और दूसरे पखवाड़े के दौरान कुछ कालावधि में सूखाने और श्रेसिंग करने में कामयाबी हासिल हुयी। विभिन्न प्रतिकूलताओं के बावजूद सोयाबीन की फसल का प्रदर्शन अच्छा रहा। हालांकि, लगातार बारिश के कारण बागानों में पौधों के स्वास्थ्य से संबंधित विभिन्न मुद्दों का प्रदर्शन किया। फल बागानों में सबसे पहले फल मक्खी के खतरे दिन-प्रतिदिन बढ़ते जा रहे हैं और इसके साथ-साथ अन्य फलों के बोरिंग कीट भी होते जा रहे हैं। बीमारियों के बारे में पिछले कुछ महीनों से एक जटिल स्थिति थी इसलिए; रासायनिक स्प्रे जगह जैविक नियंत्रण एजेंटों का उपयोग पसंद किया गया था। अंगूर में पतियों के समयपूर्व विघटन के कारण गन्ने की परिपक्वता का मुद्दा था। दूसरी ओर 'हस्त बहार' के लिए अनार में आवश्यक तनाव नहीं लगाया जा सका। इन सभी मुद्दों को ध्यान में रखते हुए स्वास्थ्य प्रबंधन के लिए एकीकृत प्रयास किए जाएंगे। इसे विभिन्न बागों में चंदवा प्रबंधन के साथ शुरू किया जा रहा है। संक्रमित उपज सामग्री का निपटान मिट्टी में दबाकर या जलाकर किया जाएगा। कीटों के लिए विभिन्न प्रकार के जालों का उपयोग और रसायनों के छिड़काव के बजाय जैविक नियंत्रण एजेंटों का उपयोग किया जाएगा।

## Plan For Progress

The campus received 283 mm rains during this month cross mark of total rainfall 1000mm on the background of annual average of 560 mm. October 2020 was busy in protecting the field crops and orchards from heavy rains. Harvesting of soybean in general fields was completed anyhow and managed to sun drying and threshing with few dry spells during second fortnight. In spite of various adversities soybean crop performance was good. However, due to continuous rains the orchards exhibited various issues related to plant health. First of all the fruit fly menace in orchards is increasing day by day along with various other fruit boring pests. Regarding the diseases there was a complex situation since last few months therefore; use of biological control agents was preferred over chemical sprays. Due to premature defoliation of leaves in grape there was an issue of cane maturity. On the other hand required stress could not be imposed in pomegranate for 'hasta bahar'. Considering all these issues integrated efforts will be taken up for plant health management. It is being started with canopy management in various orchards. The disposal of infected or infested produce material will be done by burying and burning. Use of various type of traps for insects and use of biological control agents will be preferred for spraying over chemicals.



Karonda Pruning



Experimental Sugarcane field

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