

**CROP WEATHER SITUATION  
METEOROLOGICAL DATA OF  
ICAR-INDIAN INSTITUTE OF HORTICULTURAL RESEARCH  
HESSARAGHATTA LAKE P.O., BANGALORE – 560 089**

**Period: 1<sup>st</sup> to 15<sup>th</sup> January, 2017**

**Latitude: 13<sup>o</sup>7<sup>1</sup> N**

**Longitude: 77<sup>o</sup> 29<sup>1</sup>E**

**Altitude: 890 M**

Fortnight	Temperature (°C)		Relative Humidity (%)		Evaporation (mm)	Wind speed (km/h)	Total Rainfall (mm)
	Average Max.	Average Min.	Average At 7.30AM	Average at 1.30 PM			
January 1 <sup>st</sup> to 15 <sup>th</sup> , 2017	26.0	18.0	77.0	50.0	3.0	3.0	62.0
	<b>(26.8)</b>	<b>(17.1)</b>	<b>(80.3)</b>	<b>(53.6)</b>	<b>(3.9)</b>	<b>(3.0)</b>	<b>(1.6)</b>

\* Figures in the parentheses indicate the average values during the corresponding period for the previous 5 years

**Fortnight from 1<sup>st</sup> to 15<sup>th</sup> January, 2017**

During the first fortnight of the month i.e., from January 1<sup>st</sup> to 15<sup>th</sup>, 2017, the average maximum temperature was lower by 2.0<sup>o</sup>C whereas average minimum temperature was higher by 1.0<sup>o</sup>C, as compared to the previous fortnight. The average maximum temperature was lower by 0.9<sup>o</sup>C whereas average minimum temperature was higher by 0.6<sup>o</sup>C respectively, as compared to the average values of the corresponding period for the previous five years. The percent relative humidity during morning and evening were higher by 4.0%, and 13.0% respectively, as compared to the previous fortnight. There was 62.0mm rainfall during the fortnight.

**Crop weather situation**

Day temperatures are lower ranging from 18.0 to 26.0<sup>o</sup>C. Relative humidity values are also lower. Good amount of rainfall has been received during this period. Inter cultivation operations in fruit crops may be taken up. In order to avoid occurrence of any micronutrient deficiency foliar application of micronutrient formulation is desirable. The weather data during the fortnight was suitable for the cultivation of Oyster Mushroom (*Pleurotus* spp.) and Shiitake mushroom (*Lentinula edodes*) with additional humidity requirement. Milky mushroom was slow to grow both during spawn running and cropping.

**Incidence of pests and diseases**

Under the prevailing weather situation, following pests are expected under Bangalore conditions on various horticultural crops. Various management options for their management are mentioned below.

**Hoppers on mango**

- ❖ Incidence of hoppers is observed on mango. Spray Azadirachtin 3000 ppm @ 2 ml/l, if the hopper population is low to moderate. If the number exceeds 4 per panicle spray with imidacloprid 200 SL @ 0.5 ml/l or lambda cyhalothrin 5 EC @ 0.5 ml/l at early panicle emergence.

### **Flower webbers / inflorescence caterpillars on mango**

- ❖ Besides hoppers, inflorescence caterpillars which web the flowers and feed inside are potential pests on mango during January. Application of lambda cyhalothrin @ 0.5ml/L or cypermethrin @ 1ml/L are useful to control the pest.

### **Banana skipper**

- ❖ Skipper butterfly is becoming a serious pest on banana. Larva rolls the leaves and feeds by remaining inside. Affected leaves to be mechanically removed and destroyed. In case of severe infestation, spraying of quinolphos @ 2ml/L or chlorpyrifos @ c 2.5ml/L is advised.

### **Tomato fruit borer**

- ❖ With the prevailing weather, incidence of tomato fruit borer may increase on tomato. For its management, spray HaNPV @ 250 LE/ha during evening hours or spray indoxacarb @ 0.75ml/l, if the incidence is very high. Proper waiting periods are to be followed before harvest of tomatoes.

### **Midge on chillies**

- ❖ Severe incidence of midges is observed on chilli which causes maximum damage at flowering stage. Spray thiamethoxam @ 0.3 g/l for their management.

### **Aphids on cucurbits**

- ❖ Aphid infestation may increase on different cucurbits. Spray imidacloprid @ 0.5 ml/l for their management.

### **Disease Scenario**

Disease forecast based on weather parameters during the first fortnight of January, 2017.

#### **Grape**

- ❖ Anthracnose and Powdery mildew (*Uncinula necator*) infection may be noticed. For anthracnose application of Difenoconazole (0.05%) / Thiophanate methyl (0.1%), / Carbendzim + Mancozeb (0.2%) /Bitertanol (0.2%) whereas for powdery mildew Application of Azoxytrobin (0.1%) or Triadimefon (0.1%) along with sticker @ 0.5 ml/ l is recommended for the management of disease.
- ❖ Rust might continue to be noticed in grape vine orchards (var Bangalore Blue) and could be managed by the treatment with Chlorothalonil (0.2%) or Bitertanol (0.2%) or Dinocap (0.3%) + Mancozeb (2%) along with sticker @ 0.5 ml/ l.

#### **Banana**

- ❖ Sigatoka leaf spot (*Mycosphaerella* sp.), crown rot (*Fusarium moniliforme* & *Botryodiplodia theobromae*) and anthracnose (*Colletotrichum musae*) *Macrophoma* fruit spot disease needs proper attention. Sigatoka could be managed by spraying Carbendazim (0.1%) or Thiophanate methyl (0.1%) or Tridemorph (0.1%)/ whereas crown rot, anthracnose and *Macrophoma* fruit spot disease (Specially on var. Grand Naine) could be controlled by the pre-harvest sprays involving Carbendazim (0.1%) or Thiophanate methyl (0.1%), besides post harvest dip in Chlorine water (300 ppm) for 10 minutes.
- ❖ Application of Hexaconazole + Zineb (0.2%) may be effective in case of complex infection of diseases as mentioned above.

## **Mango**

- ❖ Powdery mildew requires attention. At this point of time application of wettable sulphur is not advisable because of high temperature. Anthracnose spots might further increase on foliage. Application of Mancozeb + Dinocap (Dikar) (0.3%) or Tridemorph (0.1%) or Hexaconazole (0.1%) is recommended for the disease management. Severity of Anthracnose spots might increase. Application of Difenoconazole (0.05%) or Thiophanate methyl (0.1%) is recommended along with sticker @ 0.5 ml/ l.
- ❖ Sooty mould should be still taken care. Application of Copper oxychloride (0.3%) along with sticker (@ 0.5 ml / L) is recommended. Further hopper and other insect management is important with suitable insecticides (Imidacloprid @ 0.5%).

## **Pomegranate**

- ❖ Intensity of leaf and fruit spot disease caused by *Pseudocercospora punicae* and anthracnose of fruit and leaf (*C. gloeosporioides*) may increase further. Application of Chlorothalonil (0.2%) /Antracol (0.2%)/ Carbendazim (0.1%)/ Thiophanate methyl (0.1%)/ Hexaconazole (0.1%) along with the sticker @ 0.5ml/l is effective for the disease control.

## **Papaya**

- ❖ Infection of Black spot (*Asperisporium caricae*) may further increase. Whereas powdery mildew (*Oidium caricae*) infection may also be noticed. Application of Chlorothalonil (0.2%) Carbendazim (0.1%)/ Thiophanate methyl (0.1%)/ Hexaconazole (0.1%) along with the sticker @ 0.5ml/l with good coverage of the lower surface of the foliage is recommended.

## **Vegetables**

- ❖ Powdery mildew incidence will be high in all vegetables (solaceous and cucurbitaceous). If temperature is not high wettable sulphur can be given. If temperature increases spraying of wettable sulphur should be avoided. Hexaconazole at 0.1% along with sticker 0.5ml/ l will be effective in controlling the powdery mildews in vegetables.
- ❖ Anthracnose in vegetables will increase especially in chillies. For anthracnose application of Difenoconazole (0.05%)/ Thiophanate methyl (0.1%),/ Carbendazim + Mancozeb (0.2%) /Bitertanol (0.2%) along with sticker 0.5ml/l will be effective.

## **Ornamentals**

- ❖ Powdery mildews in rose and gerbera. Spraying azoxystrobin at 0.1% along with sticker 0.5ml/l will help in reducing powdery mildew spread under protected cultivation. In not spread extensively tebuconazole or hexaconazole at 0.1% with sticker also will help.

## **Virus diseases**

- ❖ Change in weather especially low humidity with increase in temperature favours sucking pests which are vectors of many virus diseases. Seed treatment with imidacloprid or spray of acephate (0.2%) will be effective in controlling vector population.

**CROP WEATHER SITUATION  
METEOROLOGICAL DATA OF  
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HESSARAGHATTA LAKE P.O., BANGALORE – 560 089**

**Period: 16<sup>th</sup> to 31<sup>st</sup> January, 2017**

**Latitude: 13<sup>o</sup>7<sup>1</sup> N**

**Longitude: 77<sup>o</sup> 29<sup>1</sup>E**

**Altitude: 890 M**

Fortnight	Temperature (°C)		Relative Humidity (%)		Evaporation (mm)	Wind speed (km/h)	Total Rainfall (mm)
	Average Max.	Average Min.	Average At 7.30AM	Average at 1.30 PM			
January 16 <sup>th</sup> to 31 <sup>st</sup> , 2017	28.6	16.3	72.6	36.9	3.9	2.7	0.0
	(28.0)	(15.3)	(76.5)	(44.9)	(4.2)	(3.9)	(0.0)

\* Figures in the parentheses indicate the average values during the corresponding period for the previous 5 years

**Fortnight from 16<sup>th</sup> to 31<sup>st</sup> January, 2017**

During the second fortnight of the month i.e., from January 16<sup>th</sup> to 31<sup>st</sup>, 2017, the average maximum temperature was higher by 2.6<sup>o</sup>C whereas average minimum temperature was lower by 1.7<sup>o</sup>C, as compared to the previous fortnight. The average maximum temperature was higher by 1.2<sup>o</sup>C whereas average minimum temperature was lower by 1.8<sup>o</sup>C respectively, as compared to the average values of the corresponding period for the previous five years. The percent relative humidity during morning and evening were lower by 4.4%, and 13.1% respectively, as compared to the previous fortnight. There was no rainfall during the fortnight.

**Crop weather situation**

As there was no rainfall and day temperatures are slightly higher than the average of previous 5 years, supplemented irrigation to standing rabi vegetables may be given. Split application of fertilizer to banana may be given. The weather during the second fortnight was suitable for the cultivation of Oyster Mushroom (*Pleurotus* spp.) and Shiitake mushroom (*Lentinula edodes*) with additional humidity requirement. Milky mushroom was slow to grow both during spawn running and cropping.

**Incidence of pests and diseases**

Under the prevailing weather situation, following pests are expected under Bangalore conditions on various horticultural crops. Various management options for their management are mentioned below.

**Hoppers on mango:**

- ❖ Incidence of hoppers is expected on mango. Spray Azadirachtin 10000 ppm @ 3 ml/L, if the hopper population is low to moderate. If the number exceeds 4 per panicle spray with imidacloprid 200 SL @ 0.3 ml/l or lambda cyhalothrin 5 EC @ 0.5 ml/l at early panicle emergence. This will also take care of thrips. Addition of sticker is essential. Avoid spraying on full bloom to protect pollinators.

- ❖ For organic orchards, application of entomopathogen *Metarhizium anisopliae* formulation @ 5ml/L is recommended.

### **Flower webbers / inflorescence caterpillars on mango**

- ❖ Besides hoppers, inflorescence caterpillars which web the flowers and feed inside are potential pests on mango during January. Application of lambda cyhalothrin 5EC @ 0.5ml/L or cypermethrin @ 1ml/L are useful to control the pest.

### **Banana skipper**

- ❖ Skipper butterfly is becoming a serious pest on banana. Larva rolls the leaves and feeds by remaining inside. Affected leaves to be mechanically removed and destroyed. In case of severe infestation, spraying of quinolphos @ 2ml/L or chlorpyrifos @ c 2.5ml/L is advised.

### **Onion thrips**

- ❖ Both on bulb and seed crops, thrips are expected to increase with ensuing rise in temperatures. Spraying with imidacloprid (0.3ml/L) or fipronil 5SC (1.5 ml/L) would be effective.

### **Tomato fruit borer**

- ❖ With the prevailing weather, incidence of tomato fruit borer may increase on tomato. For its management, spray HaNPV @ 250 LE/ha during evening hours or spray indoxacarb 14.5 SC @ 1ml/l, if the incidence is very high. Proper waiting periods are to be followed before harvest of tomatoes.

### **Midge on chillies**

- ❖ Severe incidence of midges is observed on chilli which causes maximum damage at flowering stage. Spray thiamethoxam 25 WG @ 0.3 g/l for their management.

### **Thrips on Chilli**

- ❖ Spraying with thiamethoxam 25 WG @ 0.3 g/l or fipronil 5SC (1.5 ml/L) would be effective.

### **Aphids on cucurbits**

- ❖ Aphid infestation may increase on different cucurbits. Spray imidacloprid 200SL @ 0.5 ml/l for their management.

### **Disease Scenario**

Disease forecast based on weather parameters during the second fortnight of January, 2017.

### **Grape**

- ❖ Anthracnose and Powdery mildew (*Uncinula necator*) infection may be noticed. For anthracnose application of Difenoconazole (0.05%)/ Thiophanate methyl (0.1%),/ Carbendzim + Mancozeb (0.2%) /Bitertanol (0.2%) whereas for powdery mildew Application of Azoxystrobin (0.1%) or Triadimefon (0.1%) along with sticker @ 0.5 ml/ l may be used for the management of disease.
- ❖ Rust might continue to be noticed in grape vine orchards (var Bangalore Blue) and could be managed by the treatment with Chlorothalonil (0.2%) or Bitertanol (0.2%) or Dinocap (0.3%) + Mancozeb (2%) along with sticker @ 0.5 ml/ l.

## **Mango**

- ❖ Powdery mildew requires attention. At this point of time application of wettable sulphur is not advisable because of increase in temperature during day time. Anthracnose spots might further increase on foliage. Application of Mancozeb + Dinocap (Dikar) (0.3%) or Tridemorph (0.1%) or Hexaconazole (0.1%) is recommended for the disease management. Severity of Anthracnose spots might increase. Application of Difenoconazole (0.05%) or Thiophanate methyl (0.1%) is recommended along with sticker @ 0.5 ml/ l.
- ❖ Sooty mould should be still taken care. Application of Copper oxychloride (0.3%) along with sticker (@ 0.5 ml / L) is recommended. Further hopper and other insect management is important with suitable insecticides (Imidacloprid @ 0.5%).

## **Papaya**

- ❖ Infection of Black spot (*Asperisporium caricae*) may further increase. Application of Chlorothalonil (0.2%) / Carbendazim (0.1%) / Thiophanate methyl (0.1%) / Hexaconazole (0.1%) along with the sticker @ 0.5ml/l with good coverage of the lower surface of the foliage is recommended.

## **Vegetables**

- ❖ Powdery mildew incidence will be high in all vegetables (solaceous and cucurbitaceous). If temperature is not high wettable sulphur can be given. If temperature increases spraying of wettable sulphur should be avoided. Hexaconazole at 0.1% along with sticker 0.5ml/ l will be effective in controlling the powdery mildews in vegetables.
- ❖ Anthracnose in vegetables will increase especially in chillies. For anthracnose application of Difenoconazole (0.05%) / Thiophanate methyl (0.1%) / Carbendazim + Mancozeb (0.2%) / Bitertanol (0.2%) along with sticker 0.5ml/l will be effective.

## **Ornamentals**

- ❖ Powdery mildews in rose and gerbera. Spraying azoxystrobin at 0.1% along with sticker 0.5ml/l will help in reducing powdery mildew spread under protected cultivation. In not spread extensively tebuconazole or hexaconazole at 0.1% with sticker also will help.

## **Virus diseases**

- ❖ Change in weather especially low humidity with increase in temperature favours sucking pests which are vectors of many virus diseases. Seed treatment with imidacloprid or spray of acephate (0.2%) will be effective in controlling vector population.

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**Period: 1<sup>st</sup> to 15<sup>th</sup> February, 2017**

**Latitude: 13<sup>o</sup>7<sup>1</sup> N**

**Longitude: 77<sup>o</sup> 29<sup>1</sup>E**

**Altitude: 890 M**

Fortnight	Temperature (°C)		Relative Humidity (%)		Evaporation (mm)	Wind speed (km/h)	Total Rainfall (mm)
	Average Max.	Average Min.	Average At 7.30AM	Average at 1.30 PM			
February 1 <sup>st</sup> to 15 <sup>th</sup> , 2017	25.9	14.9	53.9	31.0	5.2	2.2	0.0
	(29.1)	(16.0)	(73.5)	(47.2)	(4.5)	(4.62)	(0.0)

\* Figures in the parentheses indicate the average values during the corresponding period for the previous 5 years

**Fortnight from 1<sup>st</sup> to 15<sup>th</sup> February, 2017**

During the first fortnight of the month i.e., from February 1<sup>st</sup> to 15<sup>th</sup>, 2017, the average maximum temperature and minimum temperature were lower by 2.7<sup>o</sup>C and 1.4<sup>o</sup>C respectively, as compared to the previous fortnight. The average maximum temperature and minimum temperature were higher by 1.1<sup>o</sup>C and 0.7<sup>o</sup>C respectively, as compared to the average values of the corresponding period for the previous five years. The percent relative humidity during morning and evening were lower by 18.7%, and 5.9% respectively, as compared to the previous fortnight. There was no rainfall during the fortnight.

**Crop weather situation**

Very dry weather conditions prevailed during last fortnight. Frequent supplementary irrigation are very much required for late rabi vegetables and other fruit crops which are in the field. Mulching may also be provided to prevent evaporation losses. Weather during the fortnight was suitable for the cultivation of Oyster Mushroom (*Pleurotus* spp.) and Shiitake mushroom (*Lentinula edodes*) with additional humidity requirement. Milky mushroom was slow to grow both during spawn running and cropping.

**Incidence of pests and diseases**

Under the prevailing weather situation, following pests are expected under Bangalore conditions on various horticultural crops. Various management options for their management are mentioned below.

**Hoppers on mango**

❖ Incidence of hoppers is expected on mango. Spray Azadirachtin 10000 ppm @ 3 ml/L, if the hopper population is low to moderate. If the number exceeds 4 per panicle spray with imidacloprid 200 SL @ 0.3 ml/l or lambda cyhalothrin 5 EC @ 0.5 ml/l at early panicle

emergence. This will also take care of thrips. Addition of sticker is essential. Avoid spraying on full bloom to protect pollinators.

- ❖ For organic orchards, application of entomopathogen, *Metarhizium anisopliae* formulation @ 5ml/L is recommended.

### **Flower webbers / inflorescence caterpillars on mango**

- ❖ Besides hoppers, inflorescence caterpillars which web the flowers and feed inside are potential pests on mango during January. Application of lambda cyhalothrin 5EC @ 0.5ml/L or cypermethrin 25 EC @ 1ml/L are useful to control the pest.

### **Banana skipper**

- ❖ Skipper butterfly is becoming a serious pest on banana. Larva rolls the leaves and feeds by remaining inside. Affected leaves to be mechanically removed and destroyed. In case of severe infestation, spraying of quinolphos @ 2ml/L or chlorpyrifos @ c 2.5ml/L is advised.

### **Tomato fruit borer**

- ❖ With the prevailing weather, incidence of tomato fruit borer may increase on tomato. For its management, spray HaNPV @ 250 LE/ha during evening hours or spray indoxacarb 14.5 SC @ 0.75ml/l, if the incidence is very high. Proper waiting periods are to be followed before harvest of tomatoes.

### **Midge on chillies**

- ❖ Severe incidence of midges is observed on chilli which causes maximum damage at flowering stage. Spray thiamethoxam 25 WG @ 0.3 g/l for their management.

### **Aphids on cucurbits**

- ❖ Aphid infestation may increase on different cucurbits. Spray imidacloprid 200 SL @ 0.5 ml/l or thiamethoxam 25 WG @ 0.3 g/l for their management.

### **Aphids on Beans and rose**

- ❖ Aphids incidence is observed on beans and rose. Thoroughly spray neem soap or Pongamia soap (1 %) or pulverised neem seed powder extract (NSPE) 4 % for their management.

### **Thrips on rose**

- ❖ For the management of thrips on rose, spray fipronil 5 SC @ 1.5 ml/litre or imidacloprid 200 SL @ 0.5 ml/l.

### **Mites on tomato**

- ❖ Incidence of mites is observed and may increase on tomato. For their management spray spiromesfin 22.9 SC @ 1 ml/l or fenazaquin 10 EC @ 3 g/L.

### **Mites on Rose**

- ❖ During the period, incidence of mites is observed heavily on roses grown under polyhouse conditions. Spray spiromesfin 22.9 SC @ 1 ml/l for their management.

### **Disease Scenario**

Disease forecast based on weather parameters during the first fortnight of February, 2017.



## Grape

- ❖ Anthracnose and Powdery mildew (*Uncinula necator*) infection may be noticed. For anthracnose application of Difenoconazole (0.05%)/ Thiophanate methyl (0.1%),/ Carbendzim + Mancozeb (0.2%) /Bitertanol (0.2%) whereas for powdery mildew Application of Azoxystrobin (0.1%) or Triadimefon (0.1%) along with sticker @ 0.5 ml/ l is recommended for the management of disease.

## Mango

- ❖ Powdery mildew requires attention. At this point of time application of wettable sulphur is not advisable because of high temperature. Anthracnose spots might further increase on foliage. Application of Mancozeb + Dinocap (Dikar) (0.3%) or Tridemorph (0.1%) or Hexaconazole (0.1%) is recommended for the disease management. Severity of Anthracnose spots might increase. Application of Difenoconazole (0.05%) or Thiophanate methyl (0.1%) is recommended along with sticker @ 0.5 ml/ l.

## Vegetables

- ❖ **Powdery mildew** incidence will be high in all vegetables (solaceous and cucurbitaceous). If temperature is not high wettable sulphur can be given. If temperature increases spraying of wettable sulphur should be avoided. Hexaconazole at 0.1% along with sticker 0.5ml/ l will be effective in controlling the powdery mildews in vegetables.
- ❖ **Anthracnose** in vegetables will increase especially in chillies. For anthracnose application of Difenoconazole (0.05%)/ Thiophanate methyl (0.1%),/ Carbendzim + Mancozeb (0.2%) /Bitertanol (0.2%) along with sticker 0.5ml/l will be effective.

## Ornamentals

- ❖ **Powdery mildews** in rose and gerbera. Spraying azoxystrobin at 0.05% along with sticker 0.5ml/l will help in reducing powdery mildew spread under protected cultivation. In not spread extensively tebuconazole or hexaconazole at 0.1% with sticker also will help.
- ❖ **Chrysanthemum rust**: specifically in the variety locally named as marigold chrysanthemum it is severe. Spray of chlorothalonil at 0.2% at 15 days interval will reduce the incidence. In severe cases it can be alternated with propiconazole at 0.1%.

## Virus diseases

- ❖ Change in weather especially increase in temperature favours sucking pests which are vectors of many virus diseases. Seed treatment with imidacloprid or spray of acephate (0.2%) will be effective in controlling vector population.

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**Period: 16<sup>th</sup> to 28<sup>th</sup> February, 2017**

**Latitude: 13<sup>o</sup>7<sup>1</sup> N**

**Longitude: 77<sup>o</sup> 29<sup>1</sup>E**

**Altitude: 890 M**

Fortnight	Temperature (°C)		Relative Humidity (%)		Evaporation (mm)	Wind speed (km/h)	Total Rainfall (mm)
	Average Max.	Average Min.	Average At 7.30AM	Average at 1.30 PM			
February 16 <sup>th</sup> to 28 <sup>th</sup> , 2017	28.7	15.0	54.6	18.3	6.33	2.8	0.0
	(30.4)	(16.7)	(66.4)	(44.5)	(5.11)	(4.48)	(0.0)

\* Figures in the parentheses indicate the average values during the corresponding period for the previous 5 years

**Fortnight from 16<sup>th</sup> to 28<sup>th</sup> February, 2017**

During the second fortnight of the month i.e., from February 16<sup>th</sup> to 28<sup>th</sup>, 2017, the average maximum temperature and lower temperature were higher by 2.8<sup>o</sup>C and 0.1<sup>o</sup>C respectively, as compared to the previous fortnight. The average maximum temperature and minimum temperature were higher by 1.3<sup>o</sup>C and 0.7<sup>o</sup>C respectively, as compared to the average values of the corresponding period for the previous five years. The percent relative humidity during morning was higher by 0.7% whereas during evening it was lower by 12.7% respectively, as compared to the previous fortnight. There was no rainfall during the fortnight.

**Crop weather situation**

Evaporation rate during second fortnight of February 2017 was found to be high (6.33 mm) compared to last five year average (5.11 mm). This indicates the persistence of very dry weather conditions. Hence, it is advisable to give supplementary irrigation as well as mulching with organic residues to the standing vegetables and other fruit crops for getting better growth and yield. This recommendation will also help in improving soil moisture content as well as soil organic matter. The weather during the second fortnight was suitable for the cultivation of Oyster Mushroom (*Pleurotus* spp.) and Shiitake mushroom (*Lentinula edodes*) with additional humidity requirement. Milky mushroom was slow to grow both during spawn running and cropping.

**Incidence of pests and diseases**

Under the prevailing weather situation, following pests are expected under Bangalore conditions on various horticultural crops. Various management options for their management are mentioned below.

**Hoppers on mango:**

- ❖ Incidence of hoppers is expected on mango. Spray Azadirachtin 10000 ppm @ 3 ml/L, if the hopper population is low to moderate. If the number exceeds 4 per panicle spray with imidacloprid 200 SL @ 0.3 ml/l or lambda cyhalothrin 5 EC @ 0.5 ml/l at early panicle

emergence. This will also take care of thrips. Addition of sticker is essential. Avoid spraying on full bloom to protect pollinators.

- ❖ For organic orchards, application of entomopathogen *Metarhizium anisopliae* formulation @ 5ml/L is recommended.

### **Flower webbers / inflorescence caterpillars on mango**

- ❖ Besides hoppers, inflorescence caterpillars which web the flowers and feed inside are potential pests on mango during January. Application of lambda cyhalothrin 5EC @ 0.5ml/L or cypermethrin 25 EC @ 1ml/L are useful to control the pest.

### **Banana skipper**

- ❖ Skipper butterfly is becoming a serious pest on banana. Larva rolls the leaves and feeds by remaining inside. Affected leaves to be mechanically removed and destroyed. In case of severe infestation, spraying of quinolphos @ 2ml/L or chlorpyrifos @ 2.5ml/L is advised.

### **Tomato fruit borer**

- ❖ With the prevailing weather, incidence of tomato fruit borer may increase on tomato. For its management, spray HaNPV @ 250 LE/ha during evening hours or spray indoxacarb 14.5 SC @ 0.75ml/l, if the incidence is very high. Proper waiting periods are to be followed before harvest of tomatoes.

### **Midge on chillies**

- ❖ Severe incidence of midges is observed on chilli which causes maximum damage at flowering stage. Spray thiamethoxam 25 WG @ 0.3 g/l for their management.

### **Thrips on Chilli**

- ❖ Spray fipronil 5 SC @ 1.5 ml/litre if incidence is severe rotate with difenthiuron 50 WP 1g/litre and thiacloprid 0.5ml/litre @ every 7-10 days based on infestation.

### **Mites on Chilli**

- ❖ For their management spray spiromesfin 22.9 SC @ 1 ml/l or fenazaquin 10 EC@ 3 g/L.

### **Aphids on cucurbits**

- ❖ Aphid infestation may increase on different cucurbits. Spray imidacloprid 200 SL @ 0.5 ml/l or thiamethoxam 25 WG @ 0.3 g/l for their management.

### **Aphids on Beans and rose**

- ❖ Aphids incidence is observed on beans and rose. Thoroughly spray neem soap or Pongamia soap (1 %) or pulverised neem seed powder extract (NSPE) 4 % for their management.

### **Thrips on rose**

- ❖ For the management of thrips on rose, spray fipronil 5 SC @ 1.5 ml/litre or imidacloprid 200 SL @ 0.5 ml/l.

### **Mites on tomato**

- ❖ Incidence of mites is observed and may increase on tomato. For their management spray spiromesfin 22.9 SC @ 1 ml/l or fenazaquin 10 EC@ 3 g/L.

### **Mites on Rose**

- ❖ During the period, incidence of mites is observed heavily on roses grown under polyhouse conditions. Spray spiromesfin 22.9 SC @ 1 ml/l for their management.

## **Disease Scenario**

Disease forecast based on weather parameters during the second fortnight of February, 2017.

### **Grape**

- ❖ Anthracnose may be noticed. For anthracnose application of Difenoconazole (0.05%)/ Thiophanate methyl (0.1%),/ Carbendzim + Mancozeb (0.2%) /Bitertanol (0.2%) whereas for powdery mildew Application of Azoxystrobin (0.1%) or Triadimefon (0.1%) along with sticker @ 0.5 ml/ l is recommended for the management of disease. Rust might continue to be noticed in grape vine orchards (var Bangalore Blue) and could be managed by the treatment with Chlorothalonil (0.2%) or Bitertanol (0.2%) or Dinocap (0.3%) + Mancozeb (2%) along with sticker @ 0.5 ml/ l.

### **Mango**

- ❖ Powdery mildew requires attention. At this point of time application of wettable sulphur is not advisable because of high temperature. Anthracnose spots might further increase on foliage. Application of Mancozeb + Dinocap (Dikar) (0.3%) or Tridemorph (0.1%) or Hexaconazole (0.1%) is recommended for the disease management. Severity of Anthracnose spots might increase. Application of Difenoconazole (0.05%) or Thiophanate methyl (0.1%) is recommended along with sticker @ 0.5 ml/ l.
- ❖ Sooty mould should be still taken care. Application of Copper oxychloride (0.3%) along with sticker (@ 0.5 ml / L) is recommended. Further hopper and other insect management is important with suitable insecticides (Imidacloprid @ 0.5%).

### **Vegetables**

- ❖ Anthracnose in vegetables will increase especially in chillies. For anthracnose application of Difenoconazole (0.05%)/ Thiophanate methyl (0.1%),/ Carbendzim + Mancozeb (0.2%) /Bitertanol (0.2%) along with sticker 0.5ml/l will be effective.

### **Virus diseases**

- ❖ Change in weather especially low humidity with increase in temperature favours sucking pests which are vectors of many virus diseases. Seed treatment with imidacloprid or spray of acephate (0.2%) will be effective in controlling vector population.

**CROP WEATHER SITUATION  
METEOROLOGICAL DATA OF  
ICAR-INDIAN INSTITUTE OF HORTICULTURAL RESEARCH  
HESSARAGHATTA LAKE P.O., BANGALORE – 560 089**

**Period: 1<sup>st</sup> to 15<sup>th</sup> March, 2017**

**Latitude: 13°7' N**

**Longitude: 77° 29' E**

**Altitude: 890 M**

Fortnight	Temperature (°C)		Relative Humidity (%)		Evaporation (mm)	Wind speed (km/h)	Total Rainfall (mm)
	Average Max.	Average Min.	Average At 7.30AM	Average at 1.30 PM			
March 1 <sup>st</sup> to 15 <sup>th</sup> , 2017	31.7	20.0	72.6	44.8	5.7	2.58	26.35
	<b>(31.3)</b>	<b>(17.5)</b>	<b>(53.1)</b>	<b>(28.5)</b>	<b>(5.7)</b>	<b>(4.9)</b>	<b>(4.8)</b>

\* Figures in the parentheses indicate the average values during the corresponding period for the previous 5 years

**Fortnight from 1<sup>st</sup> to 15<sup>th</sup> March, 2017**

During the first fortnight of the month i.e., from March 1<sup>st</sup> to 15<sup>th</sup>, 2017, the average maximum and minimum temperature were higher by 3.0°C and 5.0°C respectively, as compared to the previous fortnight. The average maximum and minimum temperature were higher by 0.9°C and 0.8°C respectively, as compared to the average values of the corresponding period for the previous five years. The percent relative humidity during morning and afternoon were higher by 18.0%, and 26.5% respectively, as compared to the previous fortnight. There was 26.35mm rainfall during the fortnight.

**Crop weather situation**

As the average minimum and maximum temperatures are high sufficient supplemented irrigations may be provided if any summer season vegetables are being grown. Straw mulching may be provided to both fruit and vegetable crops at the basins to reduce evaporation losses and ambient temperatures. The weather during the first fortnight of March, 2017 was suitable for the cultivation of Milky mushroom and Oyster Mushroom (*Pleurotus* spp.) with additional humidity requirement. Oyster mushroom showed lower yield and lighter sporophore colour with longer stripes and loose bunches due to higher temperature.

**Incidence of pests and diseases**

Under the prevailing weather situation, following pests are expected under Bangalore conditions on various horticultural crops. Various management options for their management are mentioned below.

**Mango Hoppers**

- ❖ On mango, incidence of hoppers may continue wherever flowering is delayed. Spray azadirachtin @ 3ml/lt. or thiamethoxam @ 0.3 g/lt. or lambda cyhalothrin 5 EC @ 0.5 ml/lt. at early panicle emergence. This will also be helpful in checking the thrips.

**Mango stone weevil management**

- ❖ Wherever fruits reached lemon size (2-4 cm diameter), a spray of deltamethrin @ 1ml/lt. will be effective.

### **Fruit fly Management**

- ❖ In orchards where fruit set occurred early and they attained full size, erect methyl eugenol based fruit fly traps @ 6/acre. Collect and destroy fallen fruits.

### **Mealy bugs on grapes**

- ❖ Incidence of mealybugs may increase during this period.
- ❖ Encourage natural enemies such as lady bird beetle. If incidence is high than spray difenthiuron 50 WP 1g/lt. and repeat the spray after 2 weeks.

### **Leaf miner on tomato**

- ❖ Incidence of leaf miner is observed on tomato. For its management spray indoxacarb @ 0.75 ml/lt. or spinosad @ 0.3ml/lt.

### **Mites on tomato**

- ❖ For the management of mites on tomato, spray spiromesifen 22.9 SC@ 1ml/lt.

### **Whiteflies on tomato**

- ❖ Incidence of whiteflies is noticed on tomato. For their management spray difenthiuron 50 WP 1g/lt.

### **Brinjal shoot and fruit borer**

- ❖ For the management of brinjal shoot and fruit borer, spray rynaxypyr @ 0.3 ml/l rotate with emamectin benzoate 0.3g/liter followed by indoxacarb @ 0.75 ml/lt.

### **Thrips on rose**

- ❖ For the management of thrips on rose, spray imidacloprid @ 0.5 ml/l or fipronil 5 SC @ 1.5ml/lt.

## **Disease Scenario**

Disease forecast based on weather parameters during the first fortnight of March, 2017.

### **Grape**

- ❖ Anthracnose and Powdery mildew (*Uncinula necator*) infection may be noticed. For anthracnose application of Difenoconazole (0.05%)/ Thiophanate methyl (0.1%) / Carbendzim + Mancozeb (0.2%) /Bitertanol (0.2%) whereas for powdery mildew Application of Azoxytrobin (0.1%) or Triadimefon (0.1%) along with sticker @ 0.5 ml/ l is recommended for the management of disease.

### **Mango**

- ❖ Powdery mildew requires attention. At this point of time application of wettable sulphur is not advisable because of high temperature. Anthracnose spots might further increase on foliage. Application of Mancozeb + Dinocap (Dikar) (0.3%) or Tridemorph (0.1%) or Hexaconazole (0.1%) is recommended for the disease management. Severity of Anthracnose spots might increase. Application of Difenoconazole (0.05%) or Thiophanate methyl (0.1%) is recommended along with sticker @ 0.5 ml/ l.
- ❖ Sooty mould should be still taken care. Application of Copper oxychloride (0.3%) along with sticker (@ 0.5 ml / L) is recommended. Further hopper and other insect management is important with suitable insecticides (Imidacloprid @ 0.5%).

### **Vegetables**

- ❖ Anthracnose in vegetables will increase especially in chillies. For anthracnose application of Difenoconazole (0.05%)/ Thiophanate methyl (0.1%) / Carbendzim + Mancozeb (0.2%) /Bitertanol (0.2%) along with sticker 0.5ml/l will be effective.

### **Virus diseases**

- ❖ Change in weather especially low humidity with increase in temperature favours sucking pests which are vectors of many virus diseases. Seed treatment with imidacloprid or spray of acephate (0.2%) will be effective in controlling vector population.

**CROP WEATHER SITUATION  
METEOROLOGICAL DATA OF  
ICAR-INDIAN INSTITUTE OF HORTICULTURAL RESEARCH  
HESSARAGHATTA LAKE P.O., BANGALORE – 560 089**

**Period: 16<sup>th</sup> to 31<sup>st</sup> March, 2017**

**Latitude: 13<sup>o</sup>7<sup>1</sup> N**

**Longitude: 77<sup>o</sup> 29<sup>1</sup>E**

**Altitude: 890 M**

Fortnight	Temperature (°C)		Relative Humidity (%)		Evaporation (mm)	Wind speed (km/h)	Total Rainfall (mm)
	Average Max.	Average Min.	Average At 7.30AM	Average at 1.30 PM			
March 16 <sup>th</sup> to 31 <sup>st</sup> , 2017	34.0	18.0	66.3	41.8	6.2	2.9	0.0
	<b>(33.8)</b>	<b>(19.7)</b>	<b>(69.5)</b>	<b>(42.3)</b>	<b>(6.5)</b>	<b>(4.5)</b>	<b>(0.0)</b>

\* Figures in the parentheses indicate the average values during the corresponding period for the previous 5 years

**Fortnight from 16<sup>th</sup> to 31<sup>st</sup> March, 2017**

During the second fortnight of the month i.e., from March 16<sup>th</sup> to 31<sup>st</sup>, 2017, the average maximum temperature was higher by 2.3<sup>o</sup>C and minimum temperature was lower by 2.0<sup>o</sup>C respectively, as compared to the previous fortnight. The average maximum and minimum temperature were higher by 2.5<sup>o</sup>C and 2.2<sup>o</sup>C respectively, as compared to the average values of the corresponding period for the previous five years. The percent relative humidity during morning and afternoon were lower by 6.3%, and 3% respectively, as compared to the previous fortnight. There was no rainfall during the fortnight.

**Crop weather situation**

As the temperatures are high and there is no rainfall at all protective irrigations may be given to both fruit crops and vegetable crops. Straw mulching may be provided at the base of the plants to reduce evaporation losses. Foliar spray of micronutrients may be given to vegetable crops and fruit crops as deficiency symptoms may appear now. The weather during the second fortnight of March, 2017 was suitable for the cultivation of Milky mushroom and Oyster Mushroom (*Pleurotus* spp.) with additional humidity requirement. Oyster mushroom showed lower yield and lighter sporophore colour with longer stripes and loose bunches due to higher temperature.

**Incidence of pests and diseases**

Under the prevailing weather situation, following pests are expected under Bangalore conditions on various horticultural crops. Various management options for their management are mentioned below.

**Mango Hoppers**

- ❖ On mango, incidence of hoppers may continue wherever flowering is delayed. Spray azadirachtin @ 3ml/L. or thiamethoxam @ 0.3 g/L. This will also be helpful in checking the thrips.



### **Mango stone weevil management**

- ❖ Wherever fruits reached lemon size (2-4 cm diameter), a spray of deltamethrin @ 1ml/L will be effective. will take care of thrips incidence on fruits which is becoming serious in some parts with rising temperatures.

### **Fruit fly Management**

- ❖ In orchards where fruit set occurred early and they attained full size, erect methyl eugenol based fruit fly traps @ 6/acre. Collect and destroy fallen fruits.

### **Mealy bugs on grapes**

- ❖ Incidence of mealybugs may increase during this period.
- ❖ Encourage natural enemies such as lady bird beetle. If incidence is high than spray difenthiuron 50 WP 1g/litre and repeat the spray after 2 weeks.

### **Leaf miner on tomato**

- ❖ Incidence of leaf miner is observed on tomato. For its management spray indoxacarb @ 0.75 ml/litre or spinosad @ 0.3ml/l.

### **Mites on tomato**

- ❖ For the management of mites on tomato, spray dicofol @ 2.5 ml/l.

### **Whiteflies on tomato**

- ❖ Incidence of whiteflies is noticed on tomato. For their management spray difenthiuron 50 WP 1g/litre.

### **Brinjal shoot and fruit borer**

- ❖ For the management of brinjal shoot and fruit borer, spray rynaxypyr @ 0.3 ml/l rotate with emamectin benzoate 0.3g/liter followed by indoxacarb @ 0.75 ml/litre.

### **Thrips on rose**

- ❖ For the management of thrips on rose, spray imidacloprid @ 0.5 ml/l or fipronil 5 SC @ 1.5ml/litre.

## **Disease Scenario**

Disease forecast based on weather parameters during the second fortnight of March, 2017.

### **Grape**

- ❖ Anthracnose infection may be noticed. For anthracnose application of Difenoconazole (0.05%)/ Thiophanate methyl (0.1%),/ Carbendzim + Mancozeb (0.2%) /Bitertanol (0.2%) along with sticker @ 0.5 ml/ l is recommended for the management of disease.

### **Mango**

- ❖ Anthracnose spots might further increase on foliage. Application of Mancozeb + Dinocap (Dikar) (0.3%) or Tridemorph (0.1%) or Hexaconazole (0.1%) is recommended for the disease management. Severity of Anthracnose spots might increase. Application of Difenoconazole (0.05%) or Thiophanate methyl (0.1%) is recommended along with sticker @ 0.5 ml/ l.

- ❖ Sooty mould should be still taken care. Application of Copper oxychloride (0.3%) along with sticker (@ 0.5 ml / L) is recommended. Further hopper and other insect management is important with suitable insecticides (Imidacloprid @ 0.5%).

### **Vegetables**

- ❖ **Anthracnose** in vegetables will increase especially in chillies. For anthracnose application of Difenoconazole (0.05%)/ Thiophanate methyl (0.1%),/ Carbendzim + Mancozeb (0.2%) /Bitertanol (0.2%) along with sticker 0.5ml/l will be effective.

### **Virus diseases**

- ❖ Change in weather especially low humidity with increase in temperature favours sucking pests which are vectors of many virus diseases. Seed treatment with imidacloprid or spray of acephate (0.2%) will be effective in controlling vector population.

**CROP WEATHER SITUATION  
METEOROLOGICAL DATA OF  
ICAR-INDIAN INSTITUTE OF HORTICULTURAL RESEARCH  
HESSARAGHATTA LAKE P.O., BANGALORE – 560 089**

**Period: 1<sup>st</sup> to 15<sup>th</sup> April, 2017**

**Latitude: 13<sup>o</sup>7<sup>1</sup> N**

**Longitude: 77<sup>o</sup> 29<sup>1</sup>E**

**Altitude: 890 M**

Fortnight	Temperature (°C)		Relative Humidity (%)		Evaporation (mm)	Wind speed (km/h)	Total Rainfall (mm)
	Average Max.	Average Min.	Average At 7.30AM	Average at 1.30 PM			
April 1 <sup>st</sup> to 15 <sup>th</sup> , 2017	32.1	17.9	69.9	27.4	6.5	7.9	21.65
	(33.1)	(20.4)	(70.0)	(43.2)	(6.4)	(4.6)	(7.5)

\* Figures in the parentheses indicate the average values during the corresponding period for the previous 5 years

**Fortnight from 1<sup>st</sup> to 15<sup>th</sup> April, 2017**

During the first fortnight of the month i.e., from April 1<sup>st</sup> to 15<sup>th</sup>, 2017, the average maximum temperature and minimum temperature were lower by 1.9<sup>o</sup>C and 0.1<sup>o</sup>C respectively, as compared to the previous fortnight. The average maximum temperature was lower by 0.7<sup>o</sup>C and minimum temperature was higher by 0.7<sup>o</sup>C respectively, as compared to the average values of the corresponding period for the previous five years. The percent relative humidity during morning was higher by 3.6%, whereas during evening it was lower by 14.4% respectively, as compared to the previous fortnight. There was 7.5 mm rainfall during the fortnight.

**Crop weather situation**

Recorded rainfall during first fortnight of April 2017 was 21.65 mm and found to be high compared to last five year's average (7.5 mm). Further, the temperature (32.1<sup>o</sup>C) was found to 1<sup>o</sup>C less compared to five year's average (33.1<sup>o</sup>C). This indicates the changes in weather pattern compared to previous fortnights. Hence, it is recommended to stop giving supplementary irrigation to the well established fruit crops orchard. However, supplementary irrigation to the standing vegetable crops as well as newly established fruit crops orchard may be continued with increasing irrigation frequency intervals. Foliar spray of micronutrients may be given to vegetable crops and fruit crops as deficiency symptoms may appear now. Weather during the fortnight was suitable for the cultivation of Milky mushroom and Oyster Mushroom (*Pleurotus* spp.) with additional humidity requirement. Oyster mushroom showed lower yield and lighter sporophore colour with longer stipes and loose bunches due to higher temperature.

**Incidence of pests and diseases**

Under the prevailing weather situation, following pests are expected under Bangalore conditions on various horticultural crops. Various management options for their management are mentioned below.

### **Mango stone weevil management**

- ❖ Wherever fruits reached lemon size (2-4 cm diameter), a spray of acephate @ 1.5g/L followed after two weeks by deltamethrin @ 1ml/L. This will also take care of thrips incidence on fruits which is becoming serious in some parts with rising temperatures.

### **Fruit fly Management**

- ❖ Collect and destroy fallen fruits.
- ❖ In orchards where fruit set occurred early and they attained full size, erect methyl eugenol based fruit fly traps @ 6/acre.

### **Leaf miner on tomato**

- ❖ Incidence of leaf miner is observed on tomato. For its management spray indoxacarb @ 0.75 ml/litre or spinosad @ 0.3ml/l.

### **Mites on tomato and Ridge gourd**

- ❖ Rising temperatures favour mite multiplication. For the management of mites on tomato and ridge gourd, spray spiromesifen 22.9SC @ 1ml/L or fenazaquin 1.5ml/L at fortnight interval.

### **Serpentine leaf miner on cucurbits**

- ❖ Spray neem soap @ 10g/L mix with cypermethrin (1ml/L).
- ❖ Spray neem seed powder extract 40g/litre.

### **Whiteflies on tomato**

- ❖ Incidence of whiteflies is noticed on tomato. For their management spray difenthiuron 50 WP 1g/litre.

### **Brinjal shoot and fruit borer**

- ❖ For the management of brinjal shoot and fruit borer, spray Rynaxypyr 20 SC @ 0.3 ml/l rotate with Emamectin benzoate 5 SG @ 0.3g/liter followed by indoxacarb @ 0.75 ml/litre.

### **Mealy bugs on grapes**

- ❖ Incidence of mealybugs may increase during this period.
- ❖ Encourage natural enemies such as lady bird beetle. If incidence is higher than spray difenthiuron 50 WP 1g/litre and repeat the spray after 2 weeks.

### **Thrips on rose**

- ❖ For the management of thrips on rose, spray imidacloprid @ 0.5 ml/l or fipronil 5 SC @ 1.5ml/litre.

### **Mites on rose**

- ❖ During the period, severe incidence of mites is observed on roses grown under polyhouse conditions. Spray abamectin @ 0.5 ml/l or fenazaquin 10 EC @ 1.5ml/L at fortnight interval for their management.

### **Disease Scenario**

Disease forecast based on weather parameters during the first fortnight of April, 2017.

### **Mango**

- ❖ Anthracnose spots might further increase on foliage. Application of Mancozeb + Dinocap (Dikar) (0.3%) or Tridemorph (0.1%) or Hexaconazole (0.1%) is recommended for the disease management. Severity of Anthracnose spots might increase. Application of Difenconazole (0.05%) or Thiophanate methyl (0.1%) is recommended along with sticker @ 0.5 ml/l.
- ❖ Sooty mould should be still taken care. Application of Copper oxychloride (0.3%) along with sticker (@ 0.5 ml / L) is recommended. Further hopper and other insect management is important with suitable insecticides (Imidacloprid @ 0.5%).

### **Pomegranate**

- ❖ After having the crop in the earlier months when the farmers are giving rest period, that time also one spray of copper based fungicides is recommended to avoid the spread of bacterial blight that can increase after summer showers.

### **Vegetables**

- ❖ **Anthracnose** in vegetables will increase especially in chillies. For anthracnose application of Difenconazole (0.05%)/ Thiophanate methyl (0.1%)/Carbendzim + Mancozeb (0.2%) / Bitertanol (0.2%) along with sticker 0.5ml/l will be effective.

### **Nursery/ seedlings**

- ❖ In nursery the preventive spray with neem soap or neem oil is recommended to avoid the virus vectors that transmit the virus disease. One spray of systemic insecticide also will help.

### **Virus diseases**

- ❖ Change in weather especially low humidity with increase in temperature favours sucking pests which are vectors of many virus diseases. Seed treatment with imidacloprid or spray of acephate (0.2%) will be effective in controlling vector population.

**CROP WEATHER SITUATION  
METEOROLOGICAL DATA OF  
ICAR-INDIAN INSTITUTE OF HORTICULTURAL RESEARCH  
HESSARAGHATTA LAKE P.O., BANGALORE – 560 089**

**Period: 16<sup>th</sup> to 30<sup>th</sup> April, 2017**

**Latitude: 13<sup>0</sup>7<sup>1</sup> N**

**Longitude: 77<sup>0</sup> 29<sup>1</sup>E**

**Altitude: 890 M**

Fortnight	Temperature (°C)		Relative Humidity (%)		Evaporation (mm)	Wind speed (km/h)	Total Rainfall (mm)
	Average Max.	Average Min.	Average At 7.30AM	Average at 1.30 PM			
April 16 <sup>th</sup> to 30 <sup>th</sup> , 2017	35.6	21.0	70.9	32.6	5.9	3.04	12.1
	(33.1)	(20.4)	(73.1)	(41.9)	(6.1)	(4.7)	(15.1)

\* Figures in the parentheses indicate the average values during the corresponding period for the previous 5 years

**Fortnight from 16<sup>th</sup> to 30<sup>th</sup> April, 2017**

During the second fortnight of the month i.e., from April 16<sup>th</sup> to 30<sup>th</sup>, 2017, the average maximum temperature and minimum temperature were higher by 3.5<sup>0</sup>C and 3.1<sup>0</sup>C respectively, as compared to the previous fortnight. The average maximum and minimum temperature remains same, as compared to the average values of the corresponding period for the previous five years. The percent relative humidity during morning and evening were higher by 1% and 5.2% respectively, as compared to the previous fortnight. There was 15.1 mm rainfall during the fortnight.

**Crop weather situation**

The average maximum and minimum temperatures for this period are slightly higher than the average values for the corresponding period for previous five years. Total Rainfall and Relative Humidity during this period also lower. Straw mulching may be provided at the base of the plants to reduce evaporation losses. The lower evaporation and wind speed and moderate rainfall are good for both fruit crops like mango and summer vegetables. Field preparation may be taken up and basal application of manures and fertilizers may be taken up. Supplementary irrigation to the standing vegetable crops as well as newly established fruit crops orchard may be continued with increasing irrigation frequency intervals. Foliar spray of micronutrients may be given to vegetable crops and fruit crops as deficiency symptoms may appear now. It was observed that there was poor development of aril and rind colour of pomegranate due to high temperature. Slightly hastened maturity of mango fruits of var. Raspuri and Arka Puneeth and sunburn of undersized fruits in variety 'Dushehari' was observed. Because of high temperature and less rains sprouting was delayed and uneven in Flame Seedless grapes which were pruned during mid of April. Weather during the fortnight was suitable for the cultivation of Milky mushroom and Oyster Mushroom (*Pleurotus* spp.) with additional humidity requirement. Oyster mushroom showed lower yield and lighter sporophore colour with longer stipes and loose bunches due to higher temperature.

## **Incidence of pests and diseases**

Under the prevailing weather situation, following pests are expected under Bangalore conditions on various horticultural crops. Various management options for their management are mentioned below.

### **Mango fruit fly (*Bactrocera dorsalis*)**

As the fruits had attained maturity stage, incidence of fruit fly is expected. For its management following measures are suggested:

- ❖ Install methyl eugenol traps @ 6 /acre. Traps can be procured from IIHR or KVKs or firms licenced to manufacture IIHR traps.
- ❖ Collection and destruction of fallen fruits.
- ❖ Bait splash on tree trunks with 10% jaggery solution mixed with deltamethrin.
- ❖ Community approach at village level is recommended for the effective management of this pest.

### **Grapes Flea Beetle**

Incidence of flea beetle is expected on newly pruned vines. For its management following measures are suggested:

- ❖ Remove all loose bark
- ❖ Rake the soil in basin to expose grubs and pupae to sunlight.
- ❖ At early bud sprout –spray of imidacloprid 200 SL @ 0.3ml/L or Lambda-cyhalothrin 5 EC @ 0.5ml/L.

### **Grape thrips**

On newly pruned grapes, thrips infestation on leaves is expected. Spray *Metarhizium anisopliae* formulation @ 2ml/L two times at weekly interval or fipronil 5SC @ 1.5 ml/L twice at fortnightly interval.

### **Brinjal shoot and fruit borer (*Leucinodes orbonalis*)**

For its management following measures are suggested:

- ❖ Release of *Trichogramma chilonis* @ 75,000 per week (for four weeks), if the incidence is moderate.
- ❖ Install pheromones traps in the field.
- ❖ If the incidence is very severe, for the management of brinjal shoot and fruit borer, spray Rynaxypyr 20 SC @ 0.3 ml/l rotate with Emamectin benzoate 5 SG @ 0.3g/liter followed by indoxacarb 14.5 SC @ 0.75 ml/litre.

### **Mites on tomato and Ridge gourd**

- ❖ Rising temperatures favour mite multiplication. For the management of mites, spray spiromesifen 22.9SC @ 0.5ml/L or fenazaquin 10 EC @ 1.5ml/L at fortnight interval.

### **Thrips, *Scirtothrips dorsalis* on chilli**

- ❖ Incidence of thrips may increase on chilli and capsicum. For its management, spray fipronil 5SC @ 1.5 ml/l or spinetoram 11.7 SC@ 1ml/litre or spinosad 45 SC @ 0.5ml/litre alternating with imidacloprid 200 SL @ 0.5 ml/l at fortnightly interval if the crop is at early stage of infestation. Addition of 2 ml of neem oil or pongamia oil per every liter of insecticide spray solution enhances the efficacy of the chemicals against the pest.

### **Two spotted spider mite, *Tetranychus urticae* on rose**

For its management following measures are suggested:

- ❖ During the period, severe incidence of mites is observed on roses grown under polyhouse conditions. Spray abamectin @ 0.5 ml/l or fenazaquin 10 EC @ 1.5ml/L at fortnight interval for their management.

### **Disease Scenario**

Disease forecast based on weather parameters during the second fortnight of April, 2017.

#### **Grape**

- ❖ Grapevines should be protected against the infection of downy mildew by the application of 0.4g Dimethomorph + 2.00 g Mancozeb /l or Metalyxl + Mancozeb (0.2%)/ AI Fosetyl (0.2%) along with sticker @ 0.5 ml/ l. Lower surface of the leaves on the vines to be sprayed properly.

#### **Banana**

- ❖ Low incidence of Sigatoka (*Mycosphaerella* sp) and other leaf spots needs attention. The disease can be managed by the application of with Carbendazim (0.1%) or Thiophanate methyl (0.1%) or Tridemorph (0.1%), whereas crown rot, anthracnose and *Macrophoma* fruit spot disease (Specially on var. Grand Naine) could be controlled by the pre-harvest sprays involving Carbendazim (0.1%) or Thiophanate methyl (0.1%), besides post harvest dip in Chlorine water (300 ppm) for 10 minutes.

#### **Mango**

- ❖ Anthracnose (*C.gloeosporioides*) and stem end rot (*L. theobromae*) are expected to infect mango fruits during ripening. Pre-harvest sprays with Carbendazim (0.1%) or Thiophanate methyl (0.1%) or Azoxystrobin (0.1%) followed by post-harvest treatments with Hot water (52oC) for ten minutes is recommended.

#### **Pomegranate**

- ❖ Intensity of leaf and fruit spot disease caused by *Pseudocercospora punicae* and anthracnose of fruit and leaf (*C. gloeosporioides*) may increase further. Application of Chlorothalonil (0.2%) /Antracol (0.2%)/ Carbendazim (0.1%)/ Thiophanate methyl (0.1%)/ Hexaconazole (0.1%) along with the sticker @ 0.5ml/l is effective for the disease control.
- ❖ Nodal Blight needs further attention. Application of COC (0.2%) + Streptocycline (300 ppm) /l along with the sticker @ 0.5ml/l should be applied at the interval of 15 – 20 days.

#### **Papaya**

- ❖ Infection of Anthracnose (*C. gloeosporioides*), Black spot (*Asperisporium caricae*) may further increase. Application of Chlorothalonil (0.2%), Carbendazim (0.1%)/ Thiophanate methyl (0.1%)/ Hexaconazole (0.1%) along with the sticker @ 0.5ml/l with good coverage of the lower surface of the foliage is recommended.

#### **Guava**

- ❖ Canker (*Pestalotiopsis psidi*) in greenish immature guava fruits and styler end rot (*Phomopsis psidi*) and anthracnose (*C. gloeosporioides*) should be taken care. For the disease management application of Zineb (0.3%) or Ziride (0.4%) followed with Carbendazim (0.1%)/ Thiophanate methyl (0.1%)/ along with sticker (0.5 ml /l) should be followed.

#### **Vegetables**



- ❖ Due to intermittent rains as summer showers which was more than expected, the increased incidence of foliar diseases like anthracnose, leaf spots due to *Alternaria* and *Cercospora* is expected. For anthracnose application of Difenoconazole (0.05%)/ Thiophanate methyl (0.1%),/ Carbendzim + Mancozeb (0.2%) /Bitertanol (0.2%) along with sticker 0.5ml/l will be effective. For leaf spots preventive spray with chlorothalanyl or mancozeb @ 0.2% will reduce the incidence.

### **Ornamentals**

- ❖ Leaf spots in rose and gerbera. Spraying trifloxistrobin at 0.1% along with sticker 0.5ml/l will help in reducing powdery mildew spread under protected cultivation. If not spread extensively tebuconazole or hexaconazole at 0.1% with sticker also will help.

### **Virus diseases**

- ❖ Change in weather especially low humidity with increase in temperature favours sucking pests which are vectors of many virus diseases. Dry spells followed by intermittent rains and high temperature favour vector populations. Seed treatment with imidacloprid or spray of acephate (0.2%) will be effective in controlling vector population in vegetables. For perennial crops acephate spray at 0.2% will reduce vectors.

**CROP WEATHER SITUATION  
METEOROLOGICAL DATA OF  
ICAR-INDIAN INSTITUTE OF HORTICULTURAL RESEARCH  
HESSARAGHATTA LAKE P.O., BANGALORE – 560 089**

**Period: 1<sup>st</sup> to 15<sup>th</sup> May, 2017**

**Latitude: 13<sup>o</sup>7<sup>1</sup> N**

**Longitude: 77<sup>o</sup> 29<sup>1</sup>E**

**Altitude: 890 M**

Fortnight	Temperature (°C)		Relative Humidity (%)		Evaporation (mm)	Wind speed (km/h)	Total Rainfall (mm)
	Average Max.	Average Min.	Average At 7.30AM	Average at 1.30 PM			
May 1 <sup>st</sup> to 15 <sup>th</sup> , 2017	33.8	20.7	71.3	44.1	4.0	2.27	117.9
	(32.7)	(20.4)	(72.3)	(42.5)	(5.8)	(4.1)	(48.0)

\* Figures in the parentheses indicate the average values during the corresponding period for the previous 5 years

**Fortnight from 1<sup>st</sup> to 15<sup>th</sup> May, 2017**

During the first fortnight of the month i.e., from May 1<sup>st</sup> to 15<sup>th</sup>, 2017, the average maximum temperature and minimum temperature were lower by 1.8<sup>o</sup>C and 0.3<sup>o</sup>C respectively, as compared to the previous fortnight. The average maximum temperature was lower by 0.4<sup>o</sup>C, whereas the minimum temperature remains the same, as compared to the average values of the corresponding period for the previous five years. The percent relative humidity during morning and evening were higher by 0.4% and 11.5% respectively, as compared to the previous fortnight. There was 117.9 mm rainfall during the fortnight.

**Crop weather situation**

During the fortnight region has received good rains. There was some damage due to hail storm also. Coming days will witness more rainy days. During coming days farmers are advised to undertake land preparation under optimum moisture condition and avoid disturbing soil if it is too wet. It is time to go for a green manure crops. Farmers may sow subania, diancha, mucuna, cowpea or any of the available green manure crop and incorporate it to the soil after 50 days. Farmers may apply FYM also during this period. Wherever crops are there farmers are advised to apply Arka microbial consortium

**Incidence of pests and diseases**

Under the prevailing weather situation, following pests are expected under Bangalore conditions on various horticultural crops. Various management options for their management are mentioned below.

**Mango fruit fly (*Bactrocera dorsalis*)**

As the fruits had attained maturity stage, incidence of fruit fly is expected. For its management, the following measures are suggested:

- ❖ Install methyl eugenol traps @ 6 /acre. Traps can be procured from IIHR or KVKs or firms licensed to manufacture IIHR traps.

- ❖ Collection and destruction of fallen fruits.
- ❖ Bait splash on tree trunks with 10% jaggery solution mixed with deltamethrin.
- ❖ Community approach at village level is recommended for the effective management of this pest.

### **Grapes Flea Beetle**

Incidence of flea beetle is expected on newly pruned vines. For its management, the following measures are suggested:

- ❖ Remove all loose bark.
- ❖ Rake the soil in basin to expose grubs and pupae to sunlight and mechanical injury
- ❖ At early bud sprout – spray of imidacloprid 17.8 SL @ 0.3ml/L or Lambda-cyhalothrin 5 EC @ 0.5ml/L.

### **Grape thrips**

For its management, the following measures are suggested:

- ❖ On newly pruned grapes, thrips infestation on leaves is expected. Spray *Metarhizium anisopliae* formulation @ 2ml/L two times at weekly interval or fipronil 5 SC @ 1.5ml/L twice at fortnightly interval.

### **Brinjal shoot and fruit borer (*Leucinodes orbonalis*)**

For its management, the following measures are suggested:

- ❖ Release of *Trichogramma chilonis* @ 75,000 per week (for four weeks), if the incidence is moderate.
- ❖ Install pheromones traps in the field.
- ❖ If the incidence is very severe, for the management of brinjal shoot and fruit borer, spray Rynaxypyr 20 SC @ 0.3 ml/l rotate with Emamectin benzoate 5 SG @ 0.3g/liter followed by indoxacarb 14.5 SC @ 0.75 ml/litre.

### **Two spotted spider mite (*Tetranychus urticae*) on rose**

For its management, the following measures are suggested:

- ❖ Spray abamectin @ 0.5 ml/l under polyhouse conditions.

### **Thrips, *Scirtothrips dorsalis* on chilli**

For its management, the following measures are suggested:

- ❖ Incidence of thrips may increase on chilli and capsicum. For its management, spray fipronil @ 1.5 ml/l alternating with imidacloprid @ 0.5 ml/l at fortnightly interval if the crop is at early stage of infestation. Addition of 2 ml of neem oil or pongamia oil per every liter of insecticide spray solution enhances the efficacy of the chemicals against the pest.

### **Disease Scenario**

Disease forecast based on weather parameters during the first fortnight of May, 2017.

### **Fruit crops:**

#### **Mango**

- ❖ Anthracnose (*C. gloeosporioides*) and stem end rot (*L. theobromae*) occur in mango fruits during ripening. Pre-harvest sprays with Carbendazim (0.1%) or Thiophanate methyl (0.1%) followed by post-harvest treatments with Hot water (52°C) for ten minutes is recommended.

## **Grape**

- ❖ Anthracnose: spraying with Propineb (0.2%)/ Chlorothalonil (0.2%)/Carbendazim (0.1%)/ Thiophanate methyl (0.1%) are effective along with sticker @ 0.5 ml/ l.

## **Pomegranate**

- ❖ Nodal Blight needs further attention due to the intermittent summer showers. Application of COC (0.2%) + Streptocycline (300 ppm) /l along with the sticker @ 0.5ml/l should be applied at the interval of 15 – 20 days.

## **Banana**

- ❖ Low incidence of Sigatoka (*Mycosphaerella* sp) and other leaf spots needs attention. The disease can be managed by the application of with Carbendazim (0.1%) or Thiophanate methyl (0.1%) or Tridemorph (0.1%) whereas crown rot, anthracnose and *Macrophoma* fruit spot disease (Specially on var. Grand Naine) could be controlled by the pre-harvest sprays involving Carbendazim (0.1%) or Thiophanate methyl (0.1%), besides post harvest dip in Chlorine water (300 ppm) for 10 minutes.

## **Papaya**

- ❖ Infection of Anthracnose (*C. gloeosporioides*), Black spot (*Asperisporium caricae*) may further increase. Application of Chlorothalonil (0.2%), Carbendazim (0.1%) / Thiophanate methyl (0.1%) / Hexaconazole (0.1%) along with the sticker @ 0.5ml/l with good coverage of the lower surface of the foliage is recommended.

## **Guava**

- ❖ Canker (*Pestalotiopsis psidi*) in greenish immature guava fruits and styler end rot (*Phomopsis psidi*) and anthracnose (*C. gloeosporioides*) should be taken care. For the disease management application of Zineb (0.3%) or Ziride (0.4%) followed with Carbendazim (0.1%)/ Thiophanate methyl (0.1%)/ along with sticker (0.5 ml /l) should be followed.

## **Vegetable Crops:**

### **Tomato**

- ❖ To prevent the early leaf blight disease free seedlings are to be used. Seed treatment with captan or thiram (3g per kg of seeds) or seedling dip with copper oxy chloride (0.3%) also protects plants from various soil borne pathogens. It is the time for the protective sprays of contact fungicides like mancozeb, copper oxychloride or chlorothalonil on tomato to avoid early leaf blight. In case of serious spread due to rain splash follow up spray with propineb (0.2%) or metiram (0.2%) or pyraclostrobin + metiram (0.2%) at fortnightly interval.

### **Onion**

- ❖ To avoid the purple blotch and *Stemphyllum* leaf blight application of fungicides such as Chlorothalonil (0.2 %) or Propineb (0.2 %) or Mancozeb (0.2%) at fortnightly intervals from onset of the disease will be useful.

### **Cucurbits**

- ❖ To avoid the spread of downy mildew spraying Chlorothalonil (0.2%) or Mancozeb(0.2%) or Metalaxyl -Mancozeb(0.2%) or Fosetyl-AI (0.2%) or Cymoxanil- mancozeb(0.2%) 10-day intervals from onset of the disease.

### **Viral diseases in tomato and chilli**

- ❖ To avoid the spread of viral diseases spraying insecticides like Monocrotophos (0.15%), Acephate (0.15%) or Hostothion (0.1 %) at fortnightly intervals after transplanting till flowering stage.

**CROP WEATHER SITUATION  
METEOROLOGICAL DATA OF  
ICAR-INDIAN INSTITUTE OF HORTICULTURAL RESEARCH  
HESSARAGHATTA LAKE P.O., BANGALORE – 560 089**

**Period: 16<sup>th</sup> to 31<sup>st</sup> May, 2017**

**Latitude: 13<sup>o</sup>7<sup>1</sup> N**

**Longitude: 77<sup>o</sup> 29<sup>1</sup>E**

**Altitude: 890 M**

Fortnight	Temperature (°C)		Relative Humidity (%)		Evaporation (mm)	Wind speed (km/h)	Total Rainfall (mm)
	Average Max.	Average Min.	Average At 7.30AM	Average at 1.30 PM			
May 16 <sup>th</sup> to 31 <sup>st</sup> , 2017	31.6	21.5	86.3	52.0	4.2	-	176.4
	(31.5)	(20.1)	(76.1)	(45.1)	(5.6)	(5.1)	(97.1)

\* Figures in the parentheses indicate the average values during the corresponding period for the previous 5 years

**Fortnight from 16<sup>th</sup> to 31<sup>st</sup> May, 2017**

During the second fortnight of the month i.e., from May 16<sup>th</sup> to 31<sup>st</sup>, 2017, the average maximum temperature was lower by 2.2<sup>o</sup>C and minimum temperature was higher by 0.8<sup>o</sup>C respectively, as compared to the previous fortnight. The average maximum and minimum temperatures were lower by 1.2<sup>o</sup>C and 0.3<sup>o</sup>C respectively, as compared to the average values of the corresponding period for the previous five years. The percent relative humidity during morning and evening were higher by 15% and 7.9% respectively, as compared to the previous fortnight. There was 176.4 mm rainfall during the fortnight.

**Crop weather situation**

The fortnight was a rainy fortnight with six rainy days and received two folds more rains than previous average. Hence the soil is suitable for any cultivation. But farmers should be careful in not disturbing the soil if it is too wet. During this period, farmers must apply organic manures along with Arka Microbial Consortiums to all horticultural crops. Further vegetable farmers may take up spray of vegetable special for better results. Due to heavy rain, lot of damage was observed in Jamun germplasm collection. Flower, fruit drop and pest infestation was also found to be severe. Due to cloudy weather and rains incidence, downy mildew was observed in grapes which was kept under control by suitable prophylactic sprays. The weather data of the fortnight was suitable for the cultivation of Oyster Mushroom (*Pleurotus spp.*), Paddy straw mushroom (*Volvariella spp*) and Milky mushroom (*Calocybe indica*).

**Incidence of pests and diseases**

Under the prevailing weather situation, following pests are expected under Bangalore conditions on various horticultural crops. Various management options for their management are mentioned below.

**Mango fruit fly (*Bactrocera dorsalis*)**

As the mango fruits are in mature stage, fruit fly incidence is expected to increase across the varieties. For its management following management measures are suggested:

- ❖ Installation of methyl eugenol traps @ 6 /acre. Traps can be procured from IIHR, Bangalore or KVKs.
- ❖ Collection and destruction of fallen fruits.
- ❖ Community approach at village level is recommended for the effective management of this pest.

#### **Brinjal shoot and fruit borer (*Leucinodes orbonalis*)**

- ❖ Release of *Trichogramma chilonis* @ 75,000 per week (for four weeks), if the incidence is moderate.
- ❖ Install pheromones traps in the field
- ❖ Spray rynaxypyr @ 0.3 ml/l rotate with emamectin benzoate 0.3g/liter followed by indoxacarb @ 0.75 ml/litre.

#### **Two spotted spider mite (*Tetranychus urticae*) on rose**

- ❖ Spray abamectin @ 0.5 ml/l under polyhouse conditions for its management.

#### **Thrips (*Scirtothrips dorsalis*) on chilli**

- ❖ Incidence of thrips may increase on chilli and capsicum. For its management, spray fipronil @ 1.5 ml/l alternating with imidacloprid @ 0.5 ml/l at fortnightly interval if the crop is at early stage of infestation. Addition of 2 ml of neem oil or pongamia oil per every liter of insecticide spray solution enhances the efficacy of the chemicals against the pest.

### **Disease Scenario**

Disease forecast based on weather parameters during the second fortnight of May, 2017.

### **Fruit crops**

#### **Mango**

- ❖ Anthracnose (*C. gloeosporioides*) and stem end rot (*L. theobromae*) occur in mango fruits during ripening. Pre-harvest sprays with Carbendazim (0.1%) or Thiophanate methyl (0.1%) followed by post-harvest treatments with Hot water (52°C) for ten minutes is recommended.

#### **Grape**

- ❖ Grapevines should be continued to be protected against the infection of (i) downy mildew: by the application of 0.4g Dimethomorph + 2.00 g Mancozeb /l or Metalyxl + Mancozeb (0.2%)/ Al Fosetyl (0.2%) along with sticker @ 0.5 ml/ l. Lower surface of the leaves on the vines to be sprayed properly (ii) anthracnose: spraying with Propineb (0.2%)/ Chlorothalonil (0.2%)/Carbendazim (0.1%)/ Thiophanate methyl (0.1%) are effective along with sticker @ 0.5 ml/ l.

#### **Pomegranate**

- ❖ Intensity of leaf and fruit spot disease caused by *Pseudocercospora punicae* and anthracnose of fruit and leaf (*C. gloeosporioides*) may increase further. Application of Chlorothalonil (0.2%) /Antracol (0.2%)/ Carbendazim (0.1%)/ Thiophanate methyl (0.1%)/ Hexaconazole (0.1%) along with the sticker @ 0.5ml/l is effective for the disease control.
- ❖ Nodal Blight needs further attention. With the early onset of rains blight incidence will increase. Application of COC (0.2%) + Streptocycline (300 ppm) /l along with the sticker @ 0.5ml/l should be applied at the interval of 15 – 20 days.

## **Banana**

- ❖ Low incidence of Sigatoka (*Mycosphaerella* sp) and other leaf spots needs attention. The disease can be managed by the application of with Carbendazim (0.1%) or Thiophanate methyl (0.1%) or Tridemorph (0.1%) whereas crown rot, anthracnose and Macrophoma fruit spot disease (Specially on var. Grand Naine) could be controlled by the pre-harvest sprays involving Carbendazim (0.1%) or Thiophanate methyl (0.1%), besides post harvest dip in Chlorine water (300 ppm) for 10 minutes.

## **Papaya**

- ❖ Infection of Anthracnose (*C. gloeosporioides*), Black spot (*Asperisporium caricae*) may further increase. Application of Chlorothalonil (0.2%) Carbendazim (0.1%)/ Thiophanate methyl (0.1%)/ Hexaconazole (0.1%) along with the sticker @ 0.5ml/l with good coverage of the lower surface of the foliage is recommended.

## **Guava**

- ❖ Canker (*Pestalotiopsis psidi*) in greenish immature guava fruits and styler end rot (*Phomopsis psidi*) and anthracnose (*C. gloeosporioides*) should be taken care. For the disease management application of Zineb (0.3%) or Ziride (0.4%) followed with Carbendazim (0.1%)/ Thiophanate methyl (0.1%)/ along with sticker (0.5 ml /l) should be followed.

## **Vegetable Crops**

### **Tomato**

- ❖ To prevent the early leaf blight disease free seedlings are to be used. Seed treatment with captan or thiram (3g per kg of seeds) or seedling dip with copper oxy chloride (0.3%) also protects plants from various soil borne pathogens. It is the time for the protective sprays of contact fungicides like mancozeb, copper oxychloride or chlorothalonil on tomato to avoid early leaf blight. In case of serious spread due to rain splash follow up spray with propineb (0.2%) or metiram (0.2%) or pyraclostrobin + metiram (0.2%) at fortnightly interval.

### **Onion**

- ❖ To avoid the purple blotch and Stemphyllium leaf blight application of fungicides such as Chlorothalonil (0.2 %) or Propineb (0.2 %) or Mancozeb (0.2%) at fortnightly intervals from onset of the disease will be useful

### **Cucurbits**

- ❖ To avoid the spread of downy mildew spraying Chlorothalonil (0.2%) or Mancozeb(0.2%) or Metalaxyl -Mancozeb(0.2%) or Fosetyl-AI (0.2%) or Cymoxanil- mancozeb(0.2%) 10-day intervals from onset of the disease.

### **Viral diseases in tomato and chilli**

- ❖ To avoid the spread of viral diseases spraying insecticides like Monocrotophos (0.15%), Hostothion (0.1 %) at fortnightly intervals after transplanting till flowering stage.



**CROP WEATHER SITUATION  
METEOROLOGICAL DATA OF  
ICAR-INDIAN INSTITUTE OF HORTICULTURAL RESEARCH  
HESSARAGHATTA LAKE P.O., BANGALORE – 560 089**

**Period: 1<sup>st</sup> to 15<sup>th</sup> June, 2017**

**Latitude: 13°7' N**

**Longitude: 77° 29' E**

**Altitude: 890 M**

Fortnight	Temperature (°C)		Relative Humidity (%)		Evaporation (mm)	Wind speed (km/h)	Total Rainfall (mm)
	Average Max.	Average Min.	Average At 7.30AM	Average at 1.30 PM			
June 1 <sup>st</sup> to 15 <sup>th</sup> , 2017	29.3 (30.9)	21.2 (19.8)	78.5 (75.8)	63.0 (48.0)	3.74 (5.1)	3.86 (5.7)	9.35 (51.8)

\* Figures in the parentheses indicate the average values during the corresponding period for the previous 5 years

**Fortnight from 1<sup>st</sup> to 15<sup>th</sup> June, 2017**

During the first fortnight of the month i.e., from June 1<sup>st</sup> to 15<sup>th</sup>, 2017, the average maximum and minimum temperatures were lower by 2.3<sup>0</sup>C and 0.3<sup>0</sup>C respectively, as compared to the previous fortnight. The average maximum and minimum temperatures were lower by 0.6<sup>0</sup>C and 0.3<sup>0</sup>C respectively, as compared to the average values of the corresponding period for the previous five years. The percent relative humidity during morning was lower by 7.8% whereas during evening was higher by 11% respectively, as compared to the previous fortnight. There was 9.35mm rainfall during the fortnight.

**Crop weather situation**

The fortnight received very low rain compared to expected average rain during this time of the year. If the moisture available in the soil is sufficient for inter-culture it is time to take up inter-culture operations in standing crops. Farmers may undertake measures to conserve soil moisture through use of mulches and other methods. Wherever possible green manure crops may be grown and incorporated into the soil after sufficient growth. Farmers are also advised to use organic manures to the possible extent to enhance water storage and nutrient availability. The weather data of the fortnight was suitable for the cultivation of Oyster Mushroom (*Pleurotus spp.*), Paddy straw mushroom (*Volvariella spp*) and Milky mushroom (*Calocybe indica*).

**Incidence of pests and diseases**

Under the prevailing weather situation, following pests are expected under Bangalore conditions on various horticultural crops. Various management options for their management are mentioned below.

**Mango stem borer**

- ❖ This period coincides with the emergence of adult beetles of trunk borer, *Batocera rufomaculata*. Plug active holes (can be diagnosed with the presence of fresh hewed wood material and excreta) with cotton dipped in dichlorovos @ 5ml/L and close with mud. Affected tree trunks can be wrapped with nylon mesh to trap the emerging beetles.

### **Fruit fly on cucurbits**

- ❖ For the management of fruit fly (*Bactrocera cucurbitae*) on cucurbits, following integrated approach may be followed. Installing cue lure traps @ 10 traps/acre + Sanitation (complete destruction of infested fruits at each harvest) + Bait spray (Deltamethrin 0.1 % + jaggery @ 10g/L) at 10 days interval from the date of flowering.

### **Chilli Thrips**

- ❖ Spray fipronil 5SC(1.5 ml/l) or imidacloprid 200 SL (0.3 ml/l) alternately at fortnightly interval.

### **Root-knot nematode in tomato**

- ❖ Raise healthy transplants on soil applied with FYM or vermicompost @5 tons/ha enriched with *Trichoderma harzianum* @ 2kg + *Paecilomyces lilacinus* @ 2kg + *Pseudomonas fluorescens* @2kg /ton of FYM.
- ❖ In standing crop, apply neem cake enriched with above biopesticides @ 50g/ m<sup>2</sup>. This can also be mixed with water and applied as soil drench @ 2l/m<sup>2</sup>. The same can be thoroughly filtered and sent along with drip or sprayed.

### **Whitefly on Gerbera (polyhouses)**

- ❖ Spray diafenthiuran @ 1 g/l followed by dinetofuran 1g/litre
- ❖ Install yellow sticky traps coated with adhesive or sticky glue at crop canopy level for monitoring adult whitefly population.

### **Rose Thrips**

- ❖ Spray imidacloprid 17.8 ml/l or dimethoate 30 EC @ 2ml/l with pongamia oil 0.5%.
- ❖ Apply Fipronil 5 SC @ 1.5 ml/l in case of severe infestations.
- ❖ Drench the soil with Chlorpyrifos 20 EC @ 5ml/l for killing pupae in the soil.

### **Midge on crossandra**

- ❖ Incidence of midge is increasing on crossandra. For its management spray imidacloprid @ 0.5 ml/l.

### **Disease Scenario**

Disease forecast based on weather parameters during the first fortnight of June, 2017.

### **Fruit crops**

#### **Mango**

- ❖ Anthracnose (*C. gloeosporioides*) and stem end rot (*L. theobromae* and *P. mangiferae*) are common in mango fruits during ripening. Pre-harvest sprays with Carbendazim (0.1%) or Thiophanate methyl (0.1%) followed by post-harvest treatments with Hot water (52°C) for ten minutes is recommended.

#### **Grape**

- ❖ Grapevines should be continued to be protected against the infection of (i) downy mildew: by the application of 0.4g Dimethomorph + 2.00 g Mancozeb /l or Metalaxyl + Mancozeb (0.2%)/ Al Fosetyl (0.2%) along with sticker @ 0.5 ml/ l. Lower surface of the leaves on the vines to be sprayed properly (ii) anthracnose: spraying with Propineb (0.2%)/ Chlorothalonil (0.2%)/Carbendazim (0.1%)/ Thiophanate methyl (0.1%) are effective along with sticker @ 0.5 ml/ l.

### **Papaya**

- ❖ Infection of Anthracnose (*C. gloeosporioides*), Black spot (*Asperisporium caricae*) may further increase. Application of Chlorothalonil (0.2%), Carbendazim (0.1%) / Thiophanate methyl (0.1%) / Hexaconazole (0.1%) along with the sticker @ 0.5ml/l with good coverage of the lower surface of the foliage is recommended.

### **Pomegranate**

- ❖ Intensity of leaf and fruit spot disease caused by *Pseudocercospora punicae* and anthracnose of fruit and leaf (*C. gloeosporioides*) may increase further. Application of Chlorothalonil (0.2%) / Antracol (0.2%) / Carbendazim (0.1%) / Thiophanate methyl (0.1%) / Hexaconazole (0.1%) along with the sticker @ 0.5ml/l is effective for the disease control.
- ❖ Nodal Blight needs further attention. Application of COC (0.2%) + Streptocycline (300 ppm) / l along with the sticker @ 0.5ml/l should be applied at the interval of 15 – 20 days.

### **Guava**

- ❖ Canker (*Pestalotiopsis psidi*) in greenish immature guava fruits and styler end rot (*Phomopsis psdi*) and anthracnose (*C. gloeosporioides*) should be taken care. For the disease management application of Zineb (0.3%) or Ziride (0.4%) followed with Carbendazim (0.1%) / Thiophanate methyl (0.1%) / along with sticker (0.5 ml / l) should be followed.

### **Vegetables**

- ❖ In cucurbits it is time to monitor the downy mildews. Continuous rain and warm weather favour the disease. Spray of metalaxyl at 0.2% will reduce the spread. In tomato with the onset of monsoon the spread of buck eye spot damage on fruits may occur. This can be prevented by spray of copper oxy chloride at 3g/l and in severe cases spray with fenamidon + mancozeb at 0.2% will reduce the disease incidence. In chillies the leaf curl will spread further. Suitable insecticides to be applied to control the insect vectors.

### **Ornamentals**

- ❖ The black spot of rose can be managed by spray with trifloxystrobin + tebuconazole at 0.1% at 15 days interval. For the downy mildews spray with metalaxyl + mancozeb at 0.2% will help.

**CROP WEATHER SITUATION  
METEOROLOGICAL DATA OF  
ICAR-INDIAN INSTITUTE OF HORTICULTURAL RESEARCH  
HESSARAGHATTA LAKE P.O., BANGALORE – 560 089**

**Period: 16<sup>th</sup> to 30<sup>th</sup> June, 2017**

**Latitude: 13<sup>o</sup>7<sup>1</sup> N**

**Longitude: 77<sup>o</sup> 29<sup>1</sup>E**

**Altitude: 890 M**

Fortnight	Temperature (°C)		Relative Humidity (%)		Evaporation (mm)	Wind speed (km/h)	Total Rainfall (mm)
	Average Max.	Average Min.	Average At 7.30AM	Average at 1.30 PM			
June 16 <sup>th</sup> to 30 <sup>th</sup> , 2017	27.3	20.6	79.4	65.8	3.1	2.57	49.7
	(29.7)	(20.0)	(75.6)	(48.4)	(4.0)	(7.3)	(21.9)

\* Figures in the parentheses indicate the average values during the corresponding period for the previous 5 years

**Fortnight from 16<sup>th</sup> to 30<sup>th</sup> June, 2017**

During the first fortnight of the month i.e., from June 16<sup>th</sup> to 30<sup>th</sup>, 2017, the average maximum and minimum temperatures were lower by 2.0<sup>o</sup>C and 0.6<sup>o</sup>C respectively, as compared to the previous fortnight. The average maximum temperature was lower by 1.2<sup>o</sup>C and minimum temperature was higher by 0.2<sup>o</sup>C respectively, as compared to the average values of the corresponding period for the previous five years. The percent relative humidity during morning and evening were higher by 0.9% and 2.8% respectively, as compared to the previous fortnight. There was 49.7mm rainfall during the fortnight.

**Crop weather situation**

The total rainfall during the fortnight is better than the average rainfall of corresponding period for previous 5 years. Average maximum and minimum temperatures are lower and relative humidity is higher. Basal application of FYM and NPK fertilizers can be completed for the fruit, vegetable and flower crops which are to be planted during July. As wind speed and evaporation rate are lower there may not be much water losses during this period. The weather data of the fortnight was suitable for the cultivation of Oyster Mushroom (*Pleurotus spp.*), Paddy straw mushroom (*Volvariella spp.*) and Milky mushroom (*Calocybe indica*).

**Incidence of pests and diseases**

Under the prevailing weather situation, following pests are expected under Bangalore conditions on various horticultural crops. Various management options for their management are mentioned below.

**Mango stem borer**

❖ This period coincides with the emergence of adult beetles of trunk borer, *Batocera rufomaculata*. Plug active holes (can be diagnosed with the presence of fresh chewed wood material and excreta) with cotton dipped in dichlorovos @ 5ml/L and close with mud. In case of severe infestation IIHR developed Sealer cum healer can be used. Affected tree trunks can be wrapped with nylon mesh to trap the emerging beetles.

**Fruit fly on cucurbits**

- ❖ For the management of fruit fly (*Bactrocera cucurbitae*) on cucurbits, following integrated approach may be followed. Installing cue lure traps @ 10 traps/acre + Sanitation (complete destruction of infested fruits at each harvest) + Bait spray (Deltamethrin 0.1 % + jaggery @ 10g/L) at 10 days interval from the date of flowering.

### **Chilli Thrips**

- ❖ Spray fipronil 5SC (1.5 ml/l) or imidacloprid 200 SL (0.3 ml/l) alternately at fortnightly interval.

### **Root-knot nematode in tomato**

- ❖ Raise healthy transplants on soil applied with FYM or vermicompost @5 tons/ha enriched with *Trichoderma harzianum* @ 2kg + *Paecilomyces lilacinus* @ 2kg + *Pseudomonas fluorescens* @2kg /ton of FYM.
- ❖ In standing crop, apply neem cake enriched with above biopesticides @ 50g/ m<sup>2</sup>. This can also be mixed with water and applied as soil drench @ 2l/m<sup>2</sup>. The same can be thoroughly filtered and sent along with drip or sprayed.

### **Whitefly on Gerbera (polyhouses)**

- ❖ Spray diafenthiuran @ 1 g/l followed by dinetofuran 1g/litre
- ❖ Install yellow sticky traps coated with adhesive or sticky glue at crop canopy level for monitoring adult whitefly population.

### **Rose Thrips**

- ❖ Spray imidacloprid 17.8 ml/l or dimethoate 30 EC @ 2ml/l with pongamia oil 0.5%.
- ❖ Apply Fipronil 5 SC @ 1.5 ml/l in case of severe infestations.
- ❖ Drench the soil with Chlorpyrifos 20 EC @ 5ml/l for killing pupae in the soil.

### **Midge on crossandra**

- ❖ Incidence of midge is increasing on crossandra. For its management spray imidacloprid @ 0.5 ml/l.

### **Disease Scenario**

Disease forecast based on weather parameters during the second fortnight of June, 2017.

### **Grape**

- ❖ Grapevines should be continued to be protected against the infection of (i) downy mildew: by the application of 0.4g Dimethomorph + 2.00 g Mancozeb /l or Metalylx1 + Mancozeb (0.2%)/ Al Fosetyl (0.2%) along with sticker @ 0.5 ml/ l. Lower surface of the leaves on the vines to be sprayed properly (ii) anthracnose: spraying with Propineb (0.2%)/ Chlorothalonil (0.2%)/Carbendazim (0.1%)/ Thiophanate methyl (0.1%) are effective along with sticker @ 0.5 ml/ l. (iii) Rust (on var Bangalore blue): treatment with Chlorothalonil (0.2%) or Bitertanol (0.2%).

### **Banana**

- ❖ Moderate increase in the intensity of Sigatoka leaf spot (*Mycosphaerella* sp) was noticed compared with the last fortnight whereas anthracnose of fruits (*C. musae*) and crown rot caused by *Fusarium moniliformae* were recorded. For controlling Sigatoka application of Dinocap (0.1%) or Chlorothalonil (0.2%) is recommended whereas crown rot and anthracnose could be effectively managed by the pre-harvest sprays with Carbendazim (0.1%) or Thiophanate methyl (0.1%) followed by post harvest dip in Chlorine water (300 ppm) for 10 minutes.

## **Pomegranate**

- ❖ Intensity of leaf and fruit spot disease caused by *Pseudocercospora punicae* and anthracnose of fruit and leaf (*C. gloeosporioides*) needs attention. Application of Chlorothalonil (0.2%) /Antracol (0.2%)/ Carbendazim (0.1%)/ Thiophanate methyl (0.1%)/ Hexaconazole (0.1%) along with the sticker @ 0.5ml/l is effective for the disease control.
- ❖ Nodal Blight needs continuous attention. Application of COC (0.2%) + Streptocycline (300 ppm) /l along with the sticker @ 0.5ml/l should be applied at the interval of 15 – 20 days.

## **Papaya**

- ❖ Foliar, fruit as well as internal infection of Anthracnose (*C. gloeosporioides*), Black spot (*Asperisporium caricae*) may advance Application of Chlorothalonil (0.2%) Carbendazim (0.1%)/ Thiophanate methyl (0.1%)/ Hexaconazole (0.1%) along with the sticker @ 0.5ml/l with good coverage of the lower surface of the foliage is recommended.

## **Tomato**

- ❖ It is the time for the protective sprays of contact fungicides like mancozeb, copper oxychloride or chlorothalonil on tomato to avoid early leaf blight. In case of serious spread due to rain splash follow up spray with propineb (0.2%) or metiram (0.2%) or pyraclostrobin + metiram (0.2%) at fortnightly interval.

## **Onion**

- ❖ To avoid the purple blotch and Stemphyllum leaf blight application of fungicides such as Chlorothalonil (0.2 %) or Propineb (0.2 %) or Mancozeb (0.2%) at fortnightly intervals from onset of the disease will be useful.

## **Cucurbits**

- ❖ To avoid the spread of downy mildew spraying Chlorothalonil (0.2%)or Mancozeb(0.2%) or Metalaxyl -Mancozeb(0.2%) or Fosetyl-AI (0.2%) or Cymoxanil- mancozeb(0.2%) 10-day intervals from onset of the disease.

## **Viral diseases in tomato and chilli**

- ❖ To avoid the spread of viral diseases spraying insecticides like Monocrotophos (0.15%), or Hostothion (0.1 %) at fortnightly intervals after transplanting till flowering stage.

**CROP WEATHER SITUATION  
METEOROLOGICAL DATA OF  
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HESSARAGHATTA LAKE P.O., BANGALORE – 560 089**

**Period: 1<sup>st</sup> to 15<sup>th</sup> July, 2017**

**Latitude: 13<sup>o</sup>7<sup>1</sup> N**

**Longitude: 77<sup>o</sup> 29<sup>1</sup>E**

**Altitude: 890 M**

Fortnight	Temperature (°C)		Relative Humidity (%)		Evaporation (mm)	Wind speed (km/h)	Total Rainfall (mm)
	Average Max.	Average Min.	Average At 7.30AM	Average at 1.30 PM			
July 1 <sup>st</sup> to 15 <sup>th</sup> , 2017	28.4	20.1	83.0	63.0	3.2	3.28	26
	(28.1)	(20.3)	(76.1)	(52.0)	(3.9)	(7.3)	(44.6)

\* Figures in the parentheses indicate the average values during the corresponding period for the previous 5 years

**Fortnight from 1<sup>st</sup> to 15<sup>th</sup> July, 2017**

During the first fortnight of the month i.e., from July 1<sup>st</sup> to 15<sup>th</sup>, 2017, the average maximum was higher by 1.1<sup>o</sup>C and minimum temperature was lower by 0.5<sup>o</sup>C respectively, as compared to the previous fortnight. The average maximum temperature was lower by 1.6<sup>o</sup>C and minimum temperature was higher by 0.3<sup>o</sup>C respectively, as compared to the average values of the corresponding period for the previous five years. The percent relative humidity during morning was higher by 3.6% whereas during evening was lower by 2.8% respectively, as compared to the previous fortnight. There was 26.0mm rainfall during the fortnight.

**Crop weather situation**

During last fortnight deficit rainfall was received, due to which the vegetables will be affected. The horticultural crops whether fruits, vegetables or flower crops which are planted in early kharif may be given supplemental irrigation to protect them in their early stages. Spraying of vegetable special to the kharif vegetables@ 2-3 g/l will provide required micronutrients for their better growth. Weather is conducive for taking up all required intercultural operations. The weather data of the fortnight was suitable for the cultivation of Oyster Mushroom (*Pleurotus spp.*), Paddy straw mushroom (*Volvariella spp*) and Milky mushroom (*Calocybe indica*).

**Incidence of pests and diseases**

Under the prevailing weather situation, following pests are expected under Bangalore conditions on various horticultural crops. Various management options for their management are mentioned below.

**Mango stem borer**

- ❖ This period coincides with the emergence of adult beetles of trunk borer, *Batocera rufomaculata*. Plug active holes (can be diagnosed with the presence of fresh hewed wood material and excreta) with cotton dipped in dichlorovos @ 5ml/L and close with mud. In case of severe infestation IIHR developed Sealer cum healer can be used.

### **Fruit fly on cucurbits**

- ❖ For the management of fruit fly (*Bactrocera cucurbitae*) on cucurbits, following integrated approach may be followed. Installing cue lure traps @ 10 traps/acre + Sanitation (complete destruction of infested fruits at each harvest) + Bait spray (Deltamethrin 0.1 % + jaggery @ 10g/L) at 10 days interval from the date of flowering.

### **Chilli Thrips**

- ❖ Spray fipronil 5 SC (1.5 ml/l) or imidacloprid 200 SL (0.3 ml/l) alternately at fortnightly interval.

### **Cut worms**

- ❖ Incidence of cutworms may be seen up to 15-20 days after transplantation of vegetable crops.
- ❖ Young seedlings will be cut at ground level by cut worm larvae during night time.
- ❖ Drench the soil around the root zone of the crop with Chlorpyrifos 20 EC @ 5ml/l for killing larvae in the soil.

### **Legumes pod borer**

- ❖ Spray indoxacarb 14.5 SC @ 0.75ml/litre at 10 days interval from flowering stage.

### **Root-knot nematode in tomato**

- ❖ Raise healthy transplants on soil mixed with Neem cake @ 50kg + *Trichoderma harzianum* @ 1kg + *Paecilomyces lilacinus* @ 1kg /ton of soil.
- ❖ Apply 2 kg of Farm yard manure enriched with bio-pesticides –*T. harzianum* and *P. lilacinus* at the time of planting.

### **Whitefly on Gerbera (polyhouses)**

- ❖ Spray diafenthiuran @ 1 g/l followed by dinetofuran 1g/litre
- ❖ Install yellow sticky traps coated with adhesive or sticky glue at crop canopy level for monitoring adult whitefly population.

### **Rose Thrips**

- ❖ Spray acephate 75 SP @ 1.5 g/l or dimethoate 30 EC @ 2ml/l with pongamia oil 0.5%.
- ❖ Apply Fipronil 5 SC @ 1.5 ml/l in case of severe infestations.
- ❖ Drench the soil with Chlorpyrifos 20 EC @ 5ml/l for killing pupae in the soil.

### **Midge on crossandra**

- ❖ Incidence of midge is increasing on crossandra. For its management spray acephate @ 1.5 g/l or imidacloprid @ 0.5 ml/l.

### **Disease Scenario**

Disease forecast based on weather parameters during the first fortnight of July, 2017.

### **Fruit crops**

#### **Grape**

- ❖ Grapevines needs to be protected against the infection of (i) downy mildew: by the application of 0.4g Dimethomorph + 2.00 g Mancozeb /l or Metalaxyl + Mancozeb (0.2%)/



Al Fosetyl (0.2%) along with sticker @ 0.5 ml/ l. Lower surface of the leaves on the vines to be sprayed properly (ii) anthracnose: spraying with Propineb (0.2%)/ Chlorothalonil (0.2%)/Carbendazim (0.1%)/ Thiophanate methyl (0.1%) are effective along with sticker @ 0.5 ml/ l. (iii) Rust (on var Bangalore Blue): treatment with Chlorothalonil (0.2%) or Bitertanol (0.2%).

### **Pomegranate**

- ❖ Intensity of leaf and fruit spot disease caused by *Pseudocercospora punicae* and anthracnose of fruit and leaf (*C. gloeosporioides*) needs attention. Application of Chlorothalonil (0.2%) /Propineb (0.2%)/ Carbendazim (0.1%)/ Thiophanate methyl (0.1%)/ Hexaconazole (0.1%) along with the sticker @ 0.5ml/l is effective for the disease control.
- ❖ Fresh Bacterial blight infection can be seen due to rains. That requires continuous attention. Application of COC (0.2%) + Streptocycline (300 ppm) /l along with the sticker @ 0.5ml/l should be applied at the interval of 15 – 20 days.

### **Papaya**

- ❖ Foliar, fruit as well as internal infection of Anthracnose (*C. gloeosporioides*), Black spot (*Asperisporium caricae*) may advance. Application of Chlorothalonil (0.2%) Carbendazim (0.1%)/ Thiophanate methyl (0.1%)/ Hexaconazole (0.1%) along with the sticker @ 0.5ml/l with good coverage of the lower surface of the foliage is recommended.

### **Sapota**

- ❖ There was no appreciable change in the intensity of leaf spot (*P. indicia*) disease compared with last fortnight. Application of Zineb (0.3%) or Ziride (0.4%) along with sticker (0.5 ml /l) are recommended for their management.

### **Vegetable Crops**

#### **Tomato**

- ❖ Foliar application of copper oxychloride (0.3%) or Chlorothalonil (0.2%) or Mancozeb (0.2%) or Propineb (0.2%) or Metiram (0.2%) or Pyraclostrobin + metiram (0.2%) at fortnightly interval will reduce the spread of early leaf blight of tomato caused by *Alternaria* species. To prevent the late blight caused by *Phytophthora infestans* spraying of Mancozeb (0.2%) or Copper oxychloride (0.3%), Copper hydroxide(0.2%) or Fosetyl-Al (0.2%) or Pre-packed mixture of Metalaxyl+Mancozeb (0.2%) may be carried out that may reduce the risk of serious infection expected in the later part of the season. Spraying of acephate at .01% or imidacloprid at 0.03% will reduce the tospovirus infection spread by thrips.

#### **Chillies and capsicum**

- ❖ To prevent the leaf blight by *Phytophthora capsici* spraying of Mancozeb (0.2%) or Copper oxychloride (0.3%), Copper hydroxide(0.2%) or Fosetyl-Al (0.2%) or Pre-packed mixture of MetalaxylMancozeb (0.2%) may be carried out that may reduce the risk of serious infection expected in the later part of the season. Spray of insecticides like Monocrotophos (0.15%), Acephate (0.15%) or Hostothion (0.1 %) at fortnightly intervals after transplanting, until the flowering stage will reduce vector transmitted viral diseases incidence.

#### **Onion**

- ❖ Application of fungicides such as Chlorothalonil (0.2 %) or Propineb (0.2 %) or Mancozeb (0.2%) at fortnightly intervals from onset of the disease may reduce the purple blotch or Stemphylium leaf blight.

### **Cucurbits**

- ❖ Spraying of Chlorothalonil (0.2%) or Mancozeb(0.2%) or Metalaxyl -Mancozeb(0.2%) or Fosetyl-AI (0.2%) or Cymoxanil- mancozeb(0.2%) 10-day intervals from onset of downy mildew will reduce the damage.

### **Floriculture**

#### **Rose**

- ❖ To avoid the black spot in rose prophylactic spray with contact fungicides will help (chlorothalonil or mancozeb at 0.2%) along with sticker. If severe cases trifloxystrobin+tebuconazole at 0.1% at 15 days interval will reduce the disease incidence.

#### **Marigold**

- ❖ To avoid the spread of Alternaria blight prophylactic spray with copper oxy chloride, chlorothalonil or mancozeb at 0.2% at 15 days interval will help.

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HESSARAGHATTA LAKE P.O., BANGALORE – 560 089**

**Period: 16<sup>th</sup> to 31<sup>st</sup> July, 2017**

**Latitude: 13<sup>0</sup>7<sup>1</sup> N**

**Longitude: 77<sup>0</sup> 29<sup>1</sup>E**

**Altitude: 890 M**

Fortnight	Temperature (°C)		Relative Humidity (%)		Evaporation (mm)	Wind speed (km/h)	Total Rainfall (mm)
	Average Max.	Average Min.	Average At 7.30AM	Average at 1.30 PM			
July 16 <sup>th</sup> to 31 <sup>st</sup> , 2017	29.2	20.1	81.7	60.5	3.7	4.5	15.5
	(29.1)	(20.1)	(76.6)	(50.6)	(3.8)	(7.9)	(67.8)

\* Figures in the parentheses indicate the average values during the corresponding period for the previous 5 years

**Fortnight from 16<sup>th</sup> to 31<sup>st</sup> July, 2017**

During the first fortnight of the month i.e., from July 16<sup>th</sup> to 31<sup>st</sup>, 2017, the average maximum temperature was higher by 0.8<sup>0</sup>C, while minimum temperature remains the same respectively, as compared to the previous fortnight. The average maximum temperature was higher by 1.0<sup>0</sup>C and minimum temperature was lower by 0.2<sup>0</sup>C respectively, as compared to the average values of the corresponding period for the previous five years. The percent relative humidity during morning and afternoon were lower by 1.3% and 2.5% respectively, as compared to the previous fortnight. There was 15.5mm rainfall during the fortnight.

**Crop weather situation**

As there was deficit rainfall during last fortnight compared to the average value of previous 5 years, Supplemental irrigation may be given to protect already transplanted vegetables. Liberal application of FYM may be done to conserve moisture as well as to supply the micro nutrients. Micro nutrient sprays may also be given to banana and vegetables through banana special and vegetable special respectively. The weather data of the fortnight was suitable for the cultivation of Oyster Mushroom (*Pleurotus spp.*), Paddy straw mushroom (*Volvariella spp.*) and Milky mushroom (*Calocybe indica*).

**Incidence of pests and diseases**

Under the prevailing weather situation, following pests are expected under Bangalore conditions on various horticultural crops. Various management options for their management are mentioned below.

**Mango stem borer**

This period coincides with the emergence of adult beetles of trunk borer, *Batocera rufomaculata*. Plug active holes (can be diagnosed with the presence of fresh hewed wood material and excreta) with cotton dipped in Dichlorovos\*/Chlorpyrifos @ 5ml/L and close with mud. In case of severe infestation IIHR

developed Sealer cum healer can be used. (Note: \* Dichlorovos is banned completely w.e.f 31<sup>st</sup> Dec., 2020)

### **Fruit fly on cucurbits**

- ❖ For the management of fruit fly (*Bactrocera cucurbitae*) on cucurbits, following integrated approach may be followed. Installing cue lure traps @ 10 traps/acre + Sanitation (complete destruction of infested fruits at each harvest) + Bait spray (Deltamethrin 0.1 % + jaggery @ 10g/L) at 10 days interval from the date of flowering.

### **Chilli Thrips**

- ❖ Spray fipronil 5SC (1.5 ml/l) or imidacloprid 200 SL (0.3 ml/l) alternately at fortnightly interval.

### **Root-knot nematode in tomato**

- ❖ Raise healthy transplants on soil applied with FYM or vermicompost @5 tons/ha enriched with *Trichoderma harzianum* @ 2kg + *Paecilomyces lilacinus* @ 2kg + *Pseudomonas fluorescens* @2kg /ton of FYM.
- ❖ In standing crop, apply neem cake enriched with above biopesticides @ 50g/ m<sup>2</sup>. This can also be mixed with water and applied as soil drench @ 2l/m<sup>2</sup>. The same can be thoroughly filtered and sent along with drip or sprayed.

### **Root-knot nematode in Okra**

- ❖ Seed treatment with *Trichoderma harzianum* or *Pseudomonas fluorescens* @ 15-20g/kg seed.
- ❖ Soil application of FYM or vermicompost @5 tons/ha enriched with *Trichoderma harzianum* @ 2kg + *Paecilomyces lilacinus* @ 2kg + *Pseudomonas fluorescens* @2kg /ton of FYM..
- ❖ In standing crop, apply neem cake enriched with above biopesticides @ 50g/ m<sup>2</sup>. This can also be mixed with water and applied as soil drench @ 2l/sqm. The same can be thoroughly filtered and sent along with drip or sprayed.

### **Whitefly on Gerbera (polyhouses)**

- ❖ Spray diafenthuran @ 1 g/l followed by dinetofuran 1g/litre
- ❖ Install yellow sticky traps coated with adhesive or sticky glue at crop canopy level for monitoring adult whitefly population.

### **Rose Thrips**

- ❖ Spray imidacloprid 17.8 ml/l or dimethoate 30 EC @ 2ml/l with pongamia oil 0.5%.
- ❖ Apply Fipronil 5 SC @ 1.5 ml/l in case of severe infestations.
- ❖ Drench the soil with Chlorpyrifos 20 EC @ 5ml/l for killing pupae in the soil.

### **Midge on crossandra**

- ❖ Incidence of midge is increasing on crossandra. For its management spray imidacloprid @ 0.5 ml/l.

### **Disease Scenario**

Disease forecast based on weather parameters during the second fortnight of July, 2017.

### **Fruit Crops**

## Grape

- ❖ Grapevines need to be protected against the infection of (i) downy mildew: by the application of 0.4g Dimethomorph + 2.00 g Mancozeb /l or Metalaxyl + Mancozeb (0.2%)/ Al Fosetyl (0.2%) along with sticker @ 0.5 ml/ l. Lower surface of the leaves on the vines to be sprayed properly (ii) anthracnose: spraying with Propineb (0.2%)/ Chlorothalonil (0.2%)/Carbendazim (0.1%)/ Thiophanate methyl (0.1%) are effective along with sticker @ 0.5 ml/ l. (iii) Rust (on var Bangalore Blue): treatment with Chlorothalonil (0.2%) or Bitertanol (0.2%).

## Pomegranate

- ❖ Intensity of leaf and fruit spot disease caused by *Pseudocercospora punicae* and anthracnose of fruit and leaf (*C. gloeosporioides*) needs attention. Application of Chlorothalonil (0.2%) /Propineb (0.2%)/ Carbendazim (0.1%)/ Thiophanate methyl (0.1%)/ Hexaconazole (0.1%) along with the sticker @ 0.5ml/l is effective for the disease control.
- ❖ Fresh Bacterial blight infection can be seen due to rains. That requires continuous attention. Application of COC (0.2%) + Streptocycline (300 ppm) /l along with the sticker @ 0.5ml/l should be applied at the interval of 15 – 20 days.

## Papaya

- ❖ Foliar, fruit as well as internal infection of Anthracnose (*C. gloeosporioides*), Black spot (*Asperisporium caricae*) may advance. Application of Chlorothalonil (0.2%) Carbendazim (0.1%)/ Thiophanate methyl (0.1%)/ Hexaconazole (0.1%) along with the sticker @ 0.5ml/l with good coverage of the lower surface of the foliage is recommended.

## Sapota

- ❖ There was no appreciable change in the intensity of leaf spot (*P. indicia*) disease compared with last fortnight. Application of Zineb (0.3%) or Ziride (0.4%) along with sticker (0.5 ml /l) are recommended for their management.

## Vegetable Crops

### Tomato

- ❖ Foliar application of copper oxychloride (0.3%) or Chlorothalonil (0.2%) or Mancozeb (0.2%) or Propineb (0.2%) or Metiram (0.2%) or Pyraclostrobin + metiram (0.2%) at fortnightly interval will reduce the spread of early leaf blight of tomato caused by *Alternaria* species. To prevent the late blight caused by *Phytophthora infestans* spraying of Mancozeb (0.2%) or Copper oxychloride (0.3%), Copper hydroxide(0.2%) or Fosetyl-Al (0.2%) or Pre-packed mixture of Metalaxyl+Mancozeb (0.2%) may be carried out that may reduce the risk of serious infection expected in the later part of the season. Spraying of acephate at .01% or imidacloprid at 0.03% will reduce the tospovirus infection spread by thrips.

### Chillies and capsicum

- ❖ To prevent the leaf blight by *Phytophthora capsici* spraying of Mancozeb (0.2%) or Copper oxychloride (0.3%), Copper hydroxide(0.2%) or Fosetyl-Al (0.2%) or Pre-packed mixture of MetalaxylMancozeb (0.2%) may be carried out that may reduce the risk of serious infection expected in the later part of the season. Spray of insecticides like Monocrotophos (0.15%), Acephate (0.15%) or Hostothion (0.1 %) at fortnightly

intervals after transplanting, until the flowering stage will reduce vector transmitted viral diseases incidence.

### **Onion**

- ❖ Application of fungicides such as Chlorothalonil (0.2 %) or Propineb (0.2 %) or Mancozeb (0.2%) at fortnightly intervals from onset of the disease may reduce the purple blotch or Stemphylium leaf blight.

### **Cucurbits**

- ❖ Spraying of Chlorothalonil (0.2%) or Mancozeb(0.2%) or Metalaxyl -Mancozeb(0.2%) or Fosetyl-AI (0.2%) or Cymoxanil- mancozeb(0.2%) 10-day intervals from onset of downy mildew will reduce the damage.

### **Floriculture**

#### **Rose**

- ❖ To avoid the black spot in rose prophylactic spray with contact fungicides will help (chlorothalonil or mancozeb at 0.2%) along with sticker. If severe cases trifloxystrobin+tebuconazole at 0.1% at 15 days interval will reduce the disease incidence.

#### **Marigold**

- ❖ To avoid the spread of Alternaria blight prophylactic spray with chlorothalonil or mancozeb at 0.2% at 15 days interval will help.

**CROP WEATHER SITUATION  
METEOROLOGICAL DATA OF  
ICAR-INDIAN INSTITUTE OF HORTICULTURAL RESEARCH  
HESSARAGHATTA LAKE P.O., BANGALORE – 560 089**

**Period: 1<sup>st</sup> to 15<sup>th</sup> August, 2017**

**Latitude: 13°7' N**

**Longitude: 77° 29'E**

**Altitude: 890 M**

Fortnight	Temperature (°C)		Relative Humidity (%)		Evaporation (mm)	Wind speed (km/h)	Total Rainfall (mm)
	Average Max.	Average Min.	Average at 7.30AM	Average at 1.30PM			
August 1 <sup>st</sup> to 15 <sup>th</sup> , 2017	29.3	21.3	78.3	62.3	3.0	2.7	103.7
	(28.8)	(20.2)	(75.7)	(54.1)	(4.0)	(6.7)	(41.2)

\* Figures in the parentheses indicate the average values during the corresponding period for the previous 5 years

**Fortnight from 1<sup>st</sup> to 15<sup>th</sup> August, 2017**

During the first fortnight of the month i.e., from August 1<sup>st</sup> to 15<sup>th</sup>, 2017, the average maximum and minimum temperatures were higher by 0.1°C and 1.2°C respectively, as compared to the previous fortnight. The average maximum temperature was lower by 0.3°C and minimum temperature was higher by 0.1°C respectively, as compared to the average values of the corresponding period for the previous five years. The percent relative humidity during morning was lower by 3.4% whereas during afternoon was higher by 1.8% respectively, as compared to the previous fortnight. There was 103.7mm rainfall during the fortnight.

**Crop weather situation**

During last fortnight excess rainfall was there. Almost about 2.5 times more rainfall than average rainfall of previous 5 years. For crops like papaya water stagnation is a problem due to excess rain. Hence proper drainage may be provided so that there should not be any water stagnation at the base of the plants. Care may be taken that for other crops like banana, leafy vegetables and other vegetables to remove excess water from the base of the plants. The weather data of the fortnight was suitable for the cultivation of Oyster Mushroom (*Pleurotus spp.*), Paddy straw mushroom (*Volvariella spp*) and Milky mushroom (*Calocybe indica*).

**Incidence of pests and diseases**

Under the prevailing weather situation, following pests are expected under Bangalore conditions on various horticultural crops. Various management options for their management are mentioned below.

**Leaf Webber on mango**

- Remove and destroy the webbed portions wherever they are accessible.
- For the management of this pest prune the affected shoots and spray lambda cyhalothrin 5EC @ 1ml/l.

**Mango shoot borer**

- Clip and destroy affected shoots.
- Spray lambda cyhalothrin 5EC @ 1ml/l or Quinalphos 25 EC @ 2ml/l at the time of emergence of new flush. This will also take care of leaf eating weevil, *Rhynchaenus mangiferae*.

### **Fruit fly on cucurbits**

- For the management of fruit fly on cucurbits, following integrated approach may be followed. Deployment of cue lure traps @ 10 traps/acre + Sanitation (complete destruction of infested fruits at each harvest) + Bait spray (deltamethrin 1 ml + jaggery @ 10g/L) at 10 days interval from the date of flowering.
- Bait Splash of 40/ acre (150g jaggery + 500ml water + 5ml deltamethrin).

### **Tomato moth**

- Install tuta pheromone traps for monitoring of the adults @ 4-6 traps/acre.
- Spray indoxacarb @ 0.75 ml/litre or spinosad @ 0.3ml/l.

### **Mites on tomato**

- For the management of mites spray wettable sulphur @ 3 g/l or propargite 57 EC @ 1.25 ml/l or fenazaquine @ 1.5ml/litre.

### **Chilli Thrips**

- Spray fipronil 5 SC (1.5 ml/l) or imidacloprid 17.8 SL (0.3 ml/l) alternately at fortnightly interval.

### **Root-knot nematode in tomato**

- Raise healthy transplants on soil applied with FYM or vermicompost @5 tons/ha enriched with *Trichoderma harzianum* @ 2kg + *Paecilomyces lilacinus* @ 2kg + *Pseudomonas fluorescens* @2kg /ton of FYM.
- In standing crop, apply neem cake enriched with above biopesticides @ 50g/ m<sup>2</sup>. This can also be mixed with water and applied as soil drench @ 2l/m<sup>2</sup>.. The same can be thoroughly filtered and sent along with drip or sprayed.

### **Rose Thrips**

- Spray imidacloprid 17.8SL @0.3ml/l or dimethoate 30 EC @ 2ml/l with pongamia oil 0.5%.
- Apply Fipronil 5 SC @ 1.5 ml/l in case of severe infestations.
- Drench the soil with Chlorpyrifos 20 EC @ 5ml/l for killing pupae in the soil.

### **Mites on rose**

- For the management of mites spray milbemectin @ 1 ml/l.

### **Midge on crossandra**

- Under the prevailing conditions, incidence of midge increases on crossandra. For its management spray imidacloprid 17.8SL @ 0.3 ml/l.

### **Whitefly on Gerbera (polyhouses)**

- Spray diafenthiuran 50WP @ 1 g/l followed by dinetofuran 20SG 1g/litre
- Install yellow sticky traps coated with adhesive or sticky glue at crop canopy level for monitoring adult whitefly population.



## Disease Scenario

Disease forecast based on weather parameters during the first fortnight of August, 2017.

### Fruit crops

#### Grape

##### Downy Mildew

- Protection against the infection of downy mildew by the application of 0.8 g Dimethomorph + 2.00 g Mencozeb /L or Metalaxl + Mancozeb (0.2%)/ Al Fosetyl (0.2%).

##### Rust

- Rust needs to be taken care in grape vine orchards (var Bangalore Blue). It could be managed by the treatment with Chlorothalonil (0.2%) or Bitertanol (0.2%) or Dinocap (0.3%) + Mancozeb (2%) along with sticker @ 0.5 ml/l. Lower surface of the leaves on the vines to be sprayed properly. In white varieties preventive sprays for anthracnose management with difenconazole 0.05% or thiophenate methyl 0.1%.

#### Banana

- Intensity of Sigatoka leaf spot (*Mycosphaerella* sp) may be moderate. For controlling Sigatoka application of Tridemorph (0.1%)/ or Chlorothalonil (0.2%) is recommended. Moderate infection of Leaf (*Diehthonella* spp.), and fruit spots (*Macrophoma* spp.) may be noticed that could be effectively managed by the pre-harvest sprays with Zineb + Hexaconazole (0.2%) or Thiophanate methyl (0.1%).

#### Pomegranate

- On fresh foliage and emerging flower buds infection of anthracnose might be noticed whereas leaf and fruit spot disease caused by *Puedocercospora punicae* may become serious. These could be managed by spraying Chlorothalonil (0.2%)/Antracol (0.2%)/ Carbendazim (0.1%)/ Thiophanate methyl (0.1%)/ Hexaconazole (0.1%) along with the sticker @ 0.5ml/l.
- For bacterial blight spray of Bordeaux mixture 1% along with bronopol or streptomycin at 0.5% at 15 days interval will reduce the spread of the disease.

#### Vegetables

- Because of intermittent rains spread of Phytophthora blight is expected in tomato, chilli and other crops. For initial stages preventive spray with chlorothalonil (0.2%) and Bordeaux mixture (1%) will help. In severe conditions where spread is faster spraying with cymoxanil + mancozeb (0.1%).
- In solanaceous (tomato, capsicum, chilli) and cucurbitaceous vegetables (pumpkin, cucumber, ridge gourd etc.) Powdery mildew may appear with cool and dry weather. Hexaconazole at 0.2% spray with 0.5ml sticker/l will reduce the spread and severity. For Alternaria leaf spot chlorothalonil or dithane M 45 at 0.2% spray as preventive measure will reduce the disease incidence.

**CROP WEATHER SITUATION  
METEOROLOGICAL DATA OF  
ICAR-INDIAN INSTITUTE OF HORTICULTURAL RESEARCH  
HESSARAGHATTA LAKE P.O., BANGALORE – 560 089**

**Period: 16<sup>th</sup> to 31<sup>st</sup> August, 2017**

**Latitude: 13<sup>o</sup>7<sup>1</sup> N**

**Longitude: 77<sup>o</sup> 29<sup>1</sup>E**

**Altitude: 890 M**

Fortnight	Temperature (°C)		Relative Humidity (%)		Evaporation (mm)	Wind speed (km/h)	Total Rainfall (mm)
	Average Max.	Average Min.	Average at 7.30AM	Average at 1.30PM			
August 16 <sup>th</sup> to 31 <sup>st</sup> , 2017	27.8	20.7	87.3	66.2	3.13	3.26	140.85
	(28.9)	(20.0)	(77.8)	(53.3)	(3.8)	(5.1)	(52.3)

\* Figures in the parentheses indicate the average values during the corresponding period for the previous 5 years

**Fortnight from 16<sup>th</sup> to 31<sup>st</sup> August, 2017**

During the second fortnight of the month i.e., from August 16<sup>th</sup> to 31<sup>st</sup>, 2017, the average maximum and minimum temperatures were lower by 1.5<sup>o</sup>C and 0.6<sup>o</sup>C respectively, as compared to the previous fortnight. The average maximum temperature was higher by 0.1<sup>o</sup>C and minimum temperature was lower by 0.2<sup>o</sup>C respectively, as compared to the average values of the corresponding period for the previous five years. The percent relative humidity during morning and afternoon were higher by 9.0% and 3.9% respectively, as compared to the previous fortnight. There was 140.85mm rainfall during the fortnight.

**Crop weather situation**

There was excess rainfall during last fortnight. There was about 3-fold excess rainfall was there compared to the average of previous 5 years. The crops which are sensitive to water logging may be protected by draining out excess moisture from the base of the plants. Green manure crops may be raised now to be incorporated later. Split dose of fertilizers may be applied wherever required. The weather data of the fortnight was suitable for the cultivation of Oyster Mushroom (*Pleurotus spp.*), Paddy straw mushroom (*Volvariella spp.*) and Milky mushroom (*Calocybe indica*).

**Incidence of pests and diseases**

Under the prevailing weather situation, following pests are expected under Bangalore conditions on various horticultural crops. Various management options for their management are mentioned below.

**Leaf Webber on mango**

- Remove and destroy the webbed portions wherever they are accessible.
- For the management of this pest prune the affected shoots and spray lambda cyhalothrin 5EC @ 1ml/l.

**Mango shoot borer**

- Clip and destroy affected shoots.
- Spray lambda cyhalothrin 5EC @ 1ml/l or Quinalphos 25 EC @ 2ml/l at the time of emergence of new flush. This will also take care of leaf eating weevil, *Rhynchaenus mangiferae*.

### **Fruit fly on cucurbits**

- For the management of fruit fly on cucurbits, following integrated approach may be followed. Deployment of cue lure traps @ 15 traps/acre + Sanitation (complete destruction of infested fruits at each harvest) + Bait spray (deltamethrin 1 ml + jaggery @ 10g/L) at 10 days interval from the date of flowering.
- Bait Splash of 40/ acre (150g jaggery + 500ml water + 5ml deltamethrin).

### **Tomato moth**

- Install tuta pheromone traps for monitoring of the adults @ 4-6 traps/acre.
- Spray indoxacarb 14.5 SC @ 0.75 ml/litre or spinosad 45 SC @ 0.3ml/l

### **Mites on tomato**

- For the management of mites spray wettable sulphur @ 3 g/l or propargite 57 EC @ 1.25 ml/l or fenazaquin @ 1.5ml/litre.

### **Chilli Thrips**

- Spray fipronil 5 SC (1.5 ml/l) or imidacloprid 17.8 SL (0.3 ml/l) alternately at fortnightly interval.

### **Root-knot nematode in tomato**

- Raise healthy transplants on soil applied with FYM or vermicompost @5 tons/ha enriched with *Trichoderma harzianum* @ 2kg + *Paecilomyces lilacinus* @ 2kg + *Pseudomonas fluorescens* @2kg /ton of FYM.
- In standing crop, apply neem cake enriched with above biopesticides @ 50g/ m<sup>2</sup>. This can also be mixed with water and applied as soil drench @ 2l/m<sup>2</sup>. The same can be thoroughly filtered and sent along with drip or sprayed.

### **Rose Thrips**

- Spray imidacloprid 17.8SL @0.3ml/l or dimethoate 30 EC @ 2ml/l with pongamia oil 0.5%.
- Apply Fipronil 5 SC @ 1.5 ml/l in case of severe infestations.
- Drench the soil with Chlorpyrifos 20 EC @ 5ml/l for killing pupae in the soil.

### **Mites on rose**

- For the management of mites spray milbemectin @ 1 ml/l.

### **Midge on crossandra**

- Under the prevailing conditions, incidence of midge increases on crossandra. For its management spray imidacloprid 17.8SL @ 0.3 ml/l.

### **Whitefly on Gerbera (polyhouses)**

- Spray diafenthiuran 50WP @ 1 g/l followed by dinetofuran 20SG 1g/litre
- Install yellow sticky traps coated with adhesive or sticky glue at crop canopy level for monitoring adult whitefly population.

**CROP WEATHER SITUATION  
METEOROLOGICAL DATA OF  
ICAR-INDIAN INSTITUTE OF HORTICULTURAL RESEARCH  
HESSARAGHATTA LAKE P.O., BANGALORE – 560 089**

**Period: 1<sup>st</sup> to 15<sup>th</sup> September, 2017**

**Latitude: 13°7<sup>1</sup> N**

**Longitude: 77° 29<sup>1</sup>E**

**Altitude: 890 M**

Fortnight	Temperature (°C)		Relative Humidity (%)		Evaporation (mm)	Wind speed (km/h)	Total Rainfall (mm)
	Average Max.	Average Min.	Average at 7.30AM	Average at 1.30PM			
September 1 <sup>st</sup> to 15 <sup>th</sup> , 2017	29.3	21.3	78.3	62.3	3.0	2.7	103.7
	(28.8)	(20.2)	(75.7)	(54.1)	(4.0)	(6.7)	(41.2)

\* Figures in the parentheses indicate the average values during the corresponding period for the previous 5 years

**Fortnight from 1<sup>st</sup> to 15<sup>th</sup> September, 2017**

During the first fortnight of the month i.e., from September 1<sup>st</sup> to 15<sup>th</sup>, 2017, the average maximum and minimum temperatures were higher by 1.5<sup>0</sup>C and 0.6<sup>0</sup>C respectively, as compared to the previous fortnight. The average maximum temperature was lower by 0.1<sup>0</sup>C and minimum temperature was higher by 0.2<sup>0</sup>C respectively, as compared to the average values of the corresponding period for the previous five years. The percent relative humidity during morning and afternoon were lower by 9% and 3.9% respectively, as compared to the previous fortnight. There was 103.7mm rainfall during the fortnight.

**Crop weather situation**

There was about 2 to 3 folds higher rainfall received during the fortnight as compared to the previous record. Proper drainage may be provided to remove excess water wherever the water stagnating if observed. Split application of fertilizer may be taken up for banana and other fruit crops.

**Incidence of pests and diseases**

Under the prevailing weather situation, following pests are expected under Bangalore conditions on various horticultural crops. Various management options for their management are mentioned below.

**Hoppers and thrips on mango**

- New flush of certain varieties like Alphonso and Banganapalli attracts hoppers and thrips. Spraying with acephate 75SP @ 1.5 g /L along with sticker will check the infestation which otherwise may serve as source for flowering season.

**Fruit fly on cucurbits**

- For the management of fruit fly on cucurbits, following integrated approach may be followed. Deployment of cue lure traps @ 15 traps/acre + Sanitation (complete destruction

of infested fruits at each harvest) + Bait spray (deltamethrin 1 ml + jaggery @ 10g/L) at 10 days interval from the date of flowering.

- Bait Splash of 40/ acre (150g jaggery + 500ml water + 5ml deltamethrin)

#### **Mites on tomato**

- For the management of mites, spray wettable sulphur @ 3 g/l or propargite 57 EC @ 1.25 ml/l or fenazaquin 10 EC @ 1.5ml/litre.

#### **Ash weevil on brinjal**

- Collect and destroy adults.
- Apply oiled neem cake with 8-10% oil to ridges @ 250kg/ha at planting and repeat at 30 Days After planting.
- In endemic areas, apply carbofuran 3 G @ 15 kg/ha on 15 days after planting.
- Spray Cypermethrin 25 EC @ 0.5 ml/litre.

#### **Rose thrips**

- Spray imidacloprid 17.8 SL @ 0.5ml/l or dimethoate 30 EC @ 2ml/l with pongamia oil 0.5%.
- Apply Fipronil 5 SC @ 1.5 ml/l in case of severe infestations.
- Drench the soil with Chlorpyrifos 20 EC @ 5ml/l for killing pupae in the soil.

#### **Mites on rose**

- For the management of mites, spray milbemectin @ 1 ml/l.

#### **Midge on crossandra**

- Under the prevailing conditions, incidence of midge increases on crossandra. For its management spray imidacloprid 17.8 SL @ 0.5 ml/l.

#### **Whitefly on Gerbera (polyhouse)**

- Spray diafenthiuran 50 WP @ 1 g/l followed by dinetofuran 20 SG @ 1g/litre
- Install yellow sticky traps coated with adhesive or sticky glue at crop canopy level for monitoring adult whitefly population.

#### **Budborer on kakada**

- Severe incidence of kakada bud borer is noticed during this period. Spray profenofos 50EC @ 1 ml/l for its management. If the incidence is severe spray indoxacarb 14.5 SC @ 0.75 ml/l.

#### **Disease Scenario**

Disease forecast based on weather parameters during the first fortnight of September, 2017.

#### **Fruit crops**

##### **Grape**

- After forward pruning buds on the grapevines should be protected against the infection of downy mildew by the application of 0.8 g Dimethomorph + 2.00 g Mancozeb /L or Metalaxyl + Mancozeb (0.2%)/ Al Fosetyl (0.2%). Rust needs to be taken care in grape vine orchards (var Bangalore Blue). It could be managed by the treatment with Chlorothalonil (0.2%) or Bitertanol (0.2%) or Dinocap (0.3%) + Mancozeb (2%) along with sticker @ 0.5 ml/ l.

- Lower surface of the leaves on the vines to be sprayed properly.

### **Mango**

- Intensity of Leaf spot (*P. mangiferae* / *C. gloeosporioides*) may increase. Application of Zineb (0.2%) / Chlorothalonil (0.2%) or Mancozeb (0.2%) or Carbendazim + Iprodion (0.2%) along with the sticker @ 0.5ml/L advisable. Infection of Sooty mould should also be taken care for which application of Copper oxychloride (0.3%) along with sticker (@ 0.5 ml / L) is recommended.

### **Papaya**

- Black leaf and fruit spots (*Asperisporium cariceae*) are attaining serious proportions. Application of Thiophanate methyl (0.1%) or Antracol (0.2%) or Carbendazim + Iprodion (0.2%) along with sticker @ 0.5 ml/L are recommended. Lower surface of the leaves to be sprayed properly.

### **Banana**

- Intensity of Sigatoka leaf spot (*Mycosphaerella* sp) may be moderate. For controlling Sigatoka application of Tridemorph (0.1%)/ or Chlorothalonil (0.2%) is recommended. Moderate infection of Leaf (*Dieghthonella* spp.), and fruit spots (*Macrophomaspp.*) may be noticed that could be effectively managed by the pre-harvest sprays with Zineb + Hexaconazole (0.2%) or Thiophanate methyl (0.1%).

### **Pomegranate**

- On fresh foliage and emerging flower buds infection of anthracnose might be noticed whereas Leaf and fruit spot disease caused by *Puedocercospora punicae* may become serious These could be managed by spraying Chlorothalonil (0.2%)/Antracol (0.2%)/ Carbendazim (0.1%)/ Thiophanate methyl (0.1%)/ Hexaconazole (0.1%) along with the sticker @ 0.5ml/l.

### **Vegetables**

#### **In solanaceous (tomato, capsicum, chilli) and cucurbitaceous vegetables (pumpkin, cucumber, ridge gourd etc.)**

- Powdery mildew may appear with cool and dry weather. Hexaconazole at 0.2% spray with 0.5ml sticker/l will reduce the spread and severity. For Alternaria leaf spot chlorothalanil or dithane M 45 at 0.2% spray as preventive measure will reduce the disease incidence.
- In places where tomato has been planted late, with incessant rains late blight due to Phytophthora will appear. To prevent spray of copper oxy chloride at 0.2% or Bordeaux mixture 1% is recommended.

**CROP WEATHER SITUATION  
METEOROLOGICAL DATA OF  
ICAR-INDIAN INSTITUTE OF HORTICULTURAL RESEARCH  
HESSARAGHATTA LAKE P.O., BANGALORE – 560 089**

**Period: 16<sup>th</sup> to 30<sup>th</sup> September, 2017**

**Latitude: 13°7' N**

**Longitude: 77° 29'E**

**Altitude: 890 M**

Fortnight	Temperature (°C)		Relative Humidity (%)		Evaporation (mm)	Wind speed (km/h)	Total Rainfall (mm)
	Average Max.	Average Min.	Average at 7.30AM	Average at 1.30PM			
September 16 <sup>th</sup> to 30 <sup>th</sup> , 2017	27.7	19.8	85.3	66.8	2.93	2.91	146.5
	(29.1)	(20.7)	(79.5)	(51.2)	(3.6)	(4.2)	(72.1)

\* Figures in the parentheses indicate the average values during the corresponding period for the previous 5 years

**Fortnight from 16<sup>th</sup> to 30<sup>th</sup> September, 2017**

During the second fortnight of the month i.e., from September 16<sup>th</sup> to 30<sup>th</sup>, 2017, the average maximum and minimum temperatures were lower by 1.6°C and 1.5°C respectively, as compared to the previous fortnight. The average maximum and minimum temperatures were higher by 0.3°C and 0.4°C respectively, as compared to the average values of the corresponding period for the previous five years. The percent relative humidity during morning and afternoon were higher by 7.0% and 4.5% respectively, as compared to the previous fortnight. There was 146.5mm rainfall during the fortnight.

**Crop weather situation**

Irrigation to perennial fruit crops can be completely stopped due to sufficient rain received during the reporting period. However, if need be, irrigation can be given to vegetable and flower crops. Fertilizer application through foliar and soil may be taken up after seeing the weather conditions of the locality. Application of fertilizers before or immediately after heavy rain will lead to loss of nutrients due to soil and water erosion and also through leaching. The weather data of the fortnight was suitable for the cultivation of Oyster Mushroom (*Pleurotus spp.*) and Shiitake mushroom.

**Incidence of pests and diseases**

Under the prevailing weather situation, following pests are expected under Bangalore conditions on various horticultural crops. Various management options for their management are mentioned below.

**Mango shoot borer**

- Clip and destroy affected shoots
- Spray acephate 50 WP@ 1.5 g/l or Quinalphos 25 EC @ 2ml/l at the time of emergence of new flush. This will also take care of leaf eating weevil, *Rhynchaenus mangiferae*.

### **Webber and ash weevil on Mango**

- Incidence of webber and ash weevil become serious on new leaves. Remove webbed leaves wherever possible and burn them. Spray quinalphos 25 EC @ 2 ml/l or lambda cyhalothrin 5 EC @ 1ml /l for their management.

### **Pomegranate**

#### **Fruit sucking moth**

- Wherever matured fruits are there fruit sucking moth damage is expected. Netting the orchards is recommended.

#### **Thrips**

- On new flush, thrips incidence is expected. Spray fipronil 5 SC @ 1.5ml/L.

### **Fruit fly on cucurbits**

- For the management of fruit fly on cucurbits, following integrated approach may be followed. Deployment of cue lure traps @ 10 traps/acre + Sanitation (complete destruction of infested fruits at each harvest) + Bait spray (Deltamethrin 0.1 % + jaggery @ 10g/L) at 10 days interval from the date of flowering.

### **Tobacco caterpillar on Tomato**

- For the management of this pest, spray indoxacarb @ 0.75 ml/L or thiodicarb 75 WP @ 1 g/L.

### **Leaf hopper on Okra/Bhendi**

- Incidence of jassids is observed on okra. Spray imidacloprid 17.8 SL @ 0.3 ml/l, if the crop is at pre-flowering stage. Otherwise, spray neem or pongamia soaps @ 1 %, thoroughly covering lower surface of leaves.

### **Thrips on Rose**

- Incidence of rose thrips was observed more under polyhouse conditions. Spray acephate 75 SP @ 1 g/l or imidacloprid 17.8 SL @ 0.5 ml/l for its management.

### **Whitefly on Gerbera**

- For the management of whitefly on gerbera diafenthiuron 50 WP @ 1g/l followed by dinetofuran 20SG @ 0.3 g/l. Install yellow sticky traps coated with adhesive or sticky glue at crop canopy level for monitoring adult whitefly population.



**CROP WEATHER SITUATION  
METEOROLOGICAL DATA OF  
ICAR-INDIAN INSTITUTE OF HORTICULTURAL RESEARCH  
HESSARAGHATTA LAKE P.O., BANGALORE – 560 089**

**Period: 1<sup>st</sup> to 15<sup>th</sup> October, 2017**

**Latitude: 13<sup>o</sup>7<sup>1</sup> N**

**Longitude: 77<sup>o</sup> 29<sup>1</sup>E**

**Altitude: 890 M**

Fortnight	Temperature (°C)		Relative Humidity (%)		Evaporation (mm)	Wind speed (km/h)	Total Rainfall (mm)
	Average Max.	Average Min.	Average at 7.30AM	Average at 1.30PM			
October 1 <sup>st</sup> to 15 <sup>th</sup> , 2017	28.8	20.9	88.9	69.9	3.04	1.51	239.8
	(29.5)	(20.3)	(76.8)	( 50.9)	(4.0)	(3.7)	(86.6)

\* Figures in the parentheses indicate the average values during the corresponding period for the previous 5 years

**Fortnight from 1<sup>st</sup> to 15<sup>th</sup> October, 2017**

During the first fortnight of the month i.e., from October 1<sup>st</sup> to 15<sup>th</sup>, 2017, both the average maximum and minimum temperatures were higher by 1.1<sup>o</sup>C respectively, as compared to the previous fortnight. The average maximum temperature was higher by 0.4<sup>o</sup>C and minimum temperature was lower by 0.4<sup>o</sup>C respectively, as compared to the average values of the corresponding period for the previous five years. The percent relative humidity during morning and afternoon were higher by 3.6% and 3.1% respectively, as compared to the previous fortnight. There was 239.8mm rainfall during the fortnight.

**Crop weather situation**

When compared to the average values of last five years weather data, the difference between maximum and minimum temperatures has narrowed down during this period and the relative humidity increased. Further threefold rise in total rainfall has also recorded. This kind of weather situation may lead to reduction in evapotranspiration. Decrease in transpiration may also affect the mineral nutrient uptake and transport in the plants. Moreover, leaching of applied fertilizers as well as soil available nutrients may happen. Red-ox potential of soil may also change due to prolonged heavy rains. Though soil moisture supply is adequate due to high rainfall, higher RH may influence pollination and seed set that affect crop yield. Further high RH favors germination of fungal spores on plant leaves and increase incidences of fungal diseases. The weather during the fortnight was suitable for the cultivation of Oyster Mushroom (*Pleurotus spp.*) and Shiitake mushroom.

**Incidence of pests and diseases**

Under the prevailing weather situation, following pests are expected under Bangalore conditions on various horticultural crops. Various management options for their management are mentioned below.

**Mango shoot borer**

- Clip and destroy affected shoots

- Spray acephate 50 WP@ 1.5 g/l or Quinalphos 25 EC @ 2ml/l at the time of emergence of new flush. This will also take care of leaf eating weevil, *Rhynchaenus mangiferae*.

### **Webber and ash weevil on Mango**

- Incidence of webber and ash weevil become serious on new leaves. Remove webbed leaves wherever possible and burn them. Spray quinalphos 25 EC @ 2 ml/l or lambda cyhalothrin 5 EC @ 1ml /l for their management.

### **Pomegranate**

#### **Fruit sucking moth**

- Wherever matured fruits are there fruit sucking moth damage is expected. Netting the orchards is recommended.

### **Grapes**

- Thrips, *Scirtothrips dorsalis* is expected to occur on leaves of newly pruned Bangalore Blue. Spray fipronil 5 SC @ 1.5ml/L.

### **Fruit fly on cucurbits**

- For the management of fruit fly on cucurbits, following integrated approach may be followed. Deployment of cue lure traps @ 10 traps/acre + Sanitation (complete destruction of infested fruits at each harvest) + Bait spray (Deltamethrin 0.1 % + jaggery @ 10g/L) at 10 days interval from the date of flowering.

### **Tomato moth**

- Install tuta pheromone traps for monitoring of the adults @ 4-6 traps/acre.
- Spray indoxacarb @ 0.75 ml/litre or spinosad 45 SC @ 0.3ml/L.

### **Tobacco caterpillar on Tomato**

- For the management of this pest, spray indoxacarb @ 0.75 ml/L or thiodicarb 75 WP @ 1 g/L.

### **Leaf hopper on Okra/Bhendi**

- Incidence of jassids is observed on okra. Spray imidacloprid 17.8 SL @ 0.3 ml/L, if the crop is at pre-flowering stage. Otherwise, spray neem or pongamia soaps @ 1 %, thoroughly covering lower surface of leaves.

### **Thrips on Rose**

- Incidence of rose thrips was observed more under polyhouse conditions. Spray acephate 75 SP @ 1 g/L or imidacloprid 17.8 SL @ 0.5 ml/L for its management.

### **Whitefly on Gerbera**

- For the management of whitefly on gerbera, spray dichlorvos @ 1 ml/L followed by methomyl 40 SP @ 2 g/L. Install yellow sticky traps coated with adhesive or sticky glue at crop canopy level for monitoring adult whitefly population.

### **Disease Scenario**

Disease forecast based on weather parameters during the first fortnight of October, 2017.

### **Fruit crops**

#### **Grape**

- Rust might continue to be noticed in grape vine orchards (var Bangalore Blue) and could be managed by the treatment with Chlorothalonil (0.2%) or Bitertanol (0.2%) or Dinocap (0.3%) + Mancozeb (2%) along with sticker @ 0.5 ml/ l.

## **Mango**

- Sooty mould should be taken care. Application of Copper oxychloride (0.3%) along with sticker (@ 0.5 ml / L) is recommended. Further hopper and other insect management is important with suitable insecticides (Imidacloprid @ 0.5%).
- Anthracnose spots may increase on foliage. Application of Chlorothalonil (0.2%) or Thiophanate methyl (0.2%) or Carbendazim (0.1%) along with sticker (@ 0.5 ml / L) is recommended for the disease management.

## **Banana**

- Intensity of Sigatoka leaf spot (*Mycosphaerella* sp.), crown rot (*Fusarium moniliforme* & *Botryodiplodia theobromae*) and anthracnose (*Colletotrichum musae*) of fruits may be increased compared to last fortnight. Sigatoka could be managed by spraying Carbendazim (0.1%) or Thiophanate methyl (0.1%) or Tridemorph (0.1%)/ whereas crown rot and anthracnose could be controlled by the pre-harvest sprays involving Carbendazim (0.1%) or Thiophanate methyl (0.1%), besides post-harvest dip in Chlorine water (300 ppm) for 10 minutes.
- Macrophoma spots may appear on the fruits of Robusta varieties of banana. Application of Carbendazim (0.1%) or Thiophanate methyl (0.1%) is recommended for managing the same.

## **Pomegranate**

- Intensity of leaf and fruit spot disease caused by *Pseudocercospora punicae* and anthracnose of fruit and leaf (*C. gloeosporioides*) may remain moderate. Application of Chlorothalonil (0.2%) /Antracol (0.2%)/ Carbendazim (0.1%)/ Thiophanate methyl (0.1%)/ Hexaconazole (0.1%) along with the sticker @ 0.5ml/l is effective for the disease control. This will avoid spread of scab disease also. Regular spray of copper oxychloride (0.2%) or Bordeaux mixture (1%) along with streptomycin 0.5g/l is to be continued to avoid spread of nodal blight.

## **Vegetable Crops**

### **Leaf blight of tomato and potato by *Phytophthora infestans***

- Since the rain fall was heavy during September there is higher spread of late blight. If blight has not started, preventive spray of chlorothalonil or copper oxy chloride at 0.2% is recommended. In case of severe infection, spray of fenamidone + dithane M 45 (Sectin) at 0.1% is recommended.

### **Powdery mildew in solanaceous vegetable crops**

- Spray of wettable sulphur or dithane M 45 after the appearance of the powdery mildew symptoms. In case of severe infection hexaconazole at 0.1% is recommended.

## **Ornamental crops**

- Incidence of rose powdery mildew is expected to increase. In case of severe infection hexaconazole 0.1% or azoxystrobin 0.1% will reduce the disease spread.

**CROP WEATHER SITUATION  
METEOROLOGICAL DATA OF  
ICAR-INDIAN INSTITUTE OF HORTICULTURAL RESEARCH  
HESSARAGHATTA LAKE P.O., BANGALORE – 560 089**

**Period: 16<sup>th</sup> to 31<sup>st</sup> October, 2017**

**Latitude: 13<sup>o</sup>7<sup>1</sup> N**

**Longitude: 77<sup>o</sup> 29<sup>1</sup>E**

**Altitude: 890 M**

Fortnight	Temperature (°C)		Relative Humidity (%)		Evaporation (mm)	Wind speed (km/h)	Total Rainfall (mm)
	Average Max.	Average Min.	Average at 7.30AM	Average at 1.30PM			
October 16 <sup>th</sup> to 31 <sup>st</sup> , 2017	28.5	18.2	76.5	54.4	2.99	1.76	2.2
	(28.8)	(19.9)	(74.9)	(50.5)	(4.4)	(3.4)	(62.3)

\* Figures in the parentheses indicate the average values during the corresponding period for the previous 5 years

**Fortnight from 16<sup>th</sup> to 31<sup>st</sup> October, 2017**

During the second fortnight of the month i.e., from October 16<sup>th</sup> to 31<sup>st</sup>, 2017, the average maximum and minimum temperatures were lower by 0.3<sup>o</sup>C and 2.7<sup>o</sup>C respectively, as compared to the previous fortnight. The average maximum and minimum temperatures were lower by 0.7<sup>o</sup>C and 0.4<sup>o</sup>C respectively, as compared to the average values of the corresponding period for the previous five years. The percent relative humidity during morning and afternoon were lower by 12.4% and 15.5% respectively, as compared to the previous fortnight. There was 2.2mm rainfall during the fortnight.

**Crop weather situation**

The average maximum and minimum temperatures for this period are slightly lower than the average values for the corresponding period for previous five years. The average maximum and minimum Relative humidity is higher. Whereas total rainfall, evaporation and wind speed is lower during this fortnight. Though soil moisture is adequate due to high rainfall received during last fortnight, higher RH may influence incidences of fungal diseases. Necessary care should be taken to control fungal diseases. The Fields may be prepared for sowing or transplanting of rabi vegetables and top dressing of required nutrients may be done to fruits as well as vegetable crops. The weather data of the fortnight was suitable for the cultivation of Oyster Mushroom (*Pleurotus spp.*) and Shiitake mushroom.

**Incidence of pests and diseases**

Under the prevailing weather situation, following pests are expected under Bangalore conditions on various horticultural crops. Various management options for their management are mentioned below.

**Mango shoot borer**

- Clip and destroy affected shoots

- Spray indoxacarb 14.5 SC@ 0.75ml/l or Quinalphos 25 EC @ 2ml/l at the time of emergence of new flush. This will also take care of leaf eating weevil, *Rhynchaenus mangiferae*.

### **Webber and ash weevil on Mango**

- Incidence of webber and ash weevil become serious on new leaves. Remove webbed leaves wherever possible and burn them. Spray quinalphos 25EC@ 2 ml/l or lambda cyhalothrin @ 1ml /L for their management.

### **Pomegranate**

#### **Fruit sucking moth**

- Wherever matured fruits are there fruit sucking moth damage is expected. Netting the orchards is recommended.

### **Grapes**

- Thrip, *Scirtothrips dorsalis* is expected to occur on leaves of newly pruned Bangalore Blue. Spray fipronil @ 1.5ml/L or Metarhizium formulations.

#### **Fruit fly on cucurbits**

- For the management of fruit fly on cucurbits, following integrated approach may be followed. Deployment of cue lure traps @ 10 traps/acre + Sanitation (complete destruction of infested fruits at each harvest) + Bait spray (Deltamethrin 0.1 % + jaggery @ 10g/L) at 10 days interval from the date of flowering.

### **Tobacco caterpillar on Tomato**

- For the management of this pest, spray indoxacarb @ 0.75 ml/L or thiodicarb @ 1 g/L.

### **Leaf hopper on okra/bhendi**

- Incidence of jassids is observed on okra. Spray imidacloprid @ 0.3 ml/l, if the crop is at pre-flowering stage. Otherwise, spray neem or pongamia soaps @ 0.5 %, thoroughly covering lower surface of leaves.

### **Thrips on rose**

- Incidence of rose thrips was observed more under polyhouse conditions. Spray acephate @ 1 g/l or imidacloprid @ 0.5 ml/l for its management.

### **Disease Scenario**

Disease forecast based on weather parameters during the second fortnight of October, 2017.

### **Fruit crops**

#### **Grapes**

- Rust might continue to be noticed in grape vine orchards (var Bangalore Blue) and could be managed by the treatment with Chlorothalonil (0.2%) or Bitertanol (0.2%) or Dinocap (0.3%) + Mancozeb (2%) along with sticker @ 0.5 ml/ l.

#### **Mango**

- Sooty mould should be taken care. Application of Copper oxychloride (0.3%) along with sticker (@ 0.5 ml / L) is recommended. Further hopper and other insect management is important with suitable insecticides (Imidacloprid @ 0.5%).

- Anthracnose spots may increase on foliage. Application of Chlorothalonil (0.2%) or Thiophanate methyl (0.2%) or Carbendazim (0.1%) along with sticker (@ 0.5 ml / L) is recommended for the disease management.

### **Pomegranate**

- Intensity of leaf and fruit spot disease caused by *Pseudocercospora punicae* and anthracnose of fruit and leaf (*C. gloeosporioides*) may remain moderate. Application of Chlorothalonil (0.2%) /Antracol (0.2%)/ Carbendazim (0.1%)/ Thiophanate methyl (0.1%)/ Hexaconazole (0.1%) along with the sticker @ 0.5ml/l is effective for the disease control. This will avoid spread of scab disease also. Regular spray of copper oxychloride (0.2%) or Bordeaux mixture (1%) along with streptomycin 0.5g/l is to be continued to avoid spread of nodal blight.

### **Expected Disease Incidence in Vegetable Crops**

- There has been a dry spell that followed heavy rain there are chances for viral diseases transmitted by sucking pests like thrips and aphids. Care should be taken to prevent their population by applying the neem based formulations as per the requirement and crop stage in all crops where vector borne viral disease are expected.

### **Leaf blight of tomato and potato by *Phytophthora infestans***

- If blight has not started, preventive spray of chlorothalonil or copper oxy chloride at 0.2% is recommended. If there are drizzling due to the depression in east coast followed by rain fall the severity of leaf blight may increase. In case of severe infection, spray of fenamidone + dithane M 45 (Sectin) at 0.1% is recommended. The water logging has to be avoided to prevent humidity build up. Use of polythene mulch will reduce the secondary spread of the disease through rain flash.

### **Powdery mildew in solanaceous vegetable crops**

- As the minimum temperature has come down and there is cool and dry weather, the powdery mildew will increase. Spray of wettable sulphur or dithane M 45 after the appearance of the powdery mildew symptoms. In case of severe infection hexaconazole at 0.1% is recommended.

### **Downy mildew in cucurbits**

- The minimum temperature has come down besides there was a heavy rain fall in the previous month facilitating the downy mildews in cucurbits. Spray of chlorothalonil at 2g/litre as preventive and metalaxyl at 0.15% as curative measure will reduce the loss. The water logging has to be avoided to prevent humidity build up.

### **Ornamental crops**

- Incidence of rose powdery mildew is expected to increase. In case of severe infection hexaconazole 0.1% or azoxystrobin 0.1% will reduce the disease spread.

**CROP WEATHER SITUATION  
METEOROLOGICAL DATA OF  
ICAR-INDIAN INSTITUTE OF HORTICULTURAL RESEARCH  
HESSARAGHATTA LAKE P.O., BANGALORE – 560 089**

**Period: 1<sup>st</sup> to 15<sup>th</sup> November, 2017**

**Latitude: 13<sup>o</sup>7<sup>1</sup> N**

**Longitude: 77<sup>o</sup> 29<sup>1</sup>E**

**Altitude: 890 M**

Fortnight	Temperature (°C)		Relative Humidity (%)		Evaporation (mm)	Wind speed (km/h)	Total Rainfall (mm)
	Average Max.	Average Min.	Average at 7.30AM	Average at 1.30PM			
November 1 <sup>st</sup> to 15 <sup>th</sup> , 2017	25.2	16.5	80.8	59.7	3.05	0.39	11.65
	(27.9)	(19.3)	(77.3)	( 48.1)	(3.7)	(3.4)	(60.1)

\* Figures in the parentheses indicate the average values during the corresponding period for the previous 5 years

**Fortnight from 1<sup>st</sup> to 15<sup>th</sup> November, 2017**

During the first fortnight of the month i.e., from November 1<sup>st</sup> to 15<sup>th</sup>, 2017, both the average maximum and minimum temperatures were lower by 3.3<sup>o</sup>C and 1.7<sup>o</sup>C respectively, as compared to the previous fortnight. The average maximum and minimum temperatures were lower by 0.9<sup>o</sup>C and 0.3<sup>o</sup>C respectively, as compared to the average values of the corresponding period for the previous five years. The percent relative humidity during morning and afternoon were higher by 4.3% and 5.3% respectively, as compared to the previous fortnight. There was 11.65mm rainfall during the fortnight.

**Crop weather situation**

Dry weather is prevailing. Soil surface is also getting dried. It is time to cover soil surface with available mulch to prevent reoperation. All fruit crops farmers are advised to give one density with AMC. Vegetable farmers may apply required organic manure before transplanting rabi vegetables. Mango farmers are advised to give one spray with mango special.

**Incidence of pests and diseases**

Under the prevailing weather situation, following pests are expected under Bangalore conditions on various horticultural crops. Various management options for their management are mentioned below.

**Mango**

**Leaf hoppers**

- Initial level of leafhopper incidence can be managed by spraying Azadirachtin @3ml/l.

**Tomato**

**Tomato Fruit borer (*Tuta absoluta*)**

- Population of tomato fruit borer will increase and can be managed by spraying Spinosad @0.3ml/ or Spinetoram @ 1ml/l.



## **Chilli**

### **Thrips**

- Thrips incidence may shoot up under such weather conditions. Recommended to spray Fipronil @1ml/l.

### **Rose**

#### **Aphids**

- Aphid infestation may further increase on rose in open field conditions. Recommended to spray Dimethoate @2ml/l.

### **Gerbera**

#### **Leaf miner**

- Under polyhouse conditions in gerbera crop leafminer infestation will be increased. Recommended to spray cypermethrin@1ml/l

**\*Safe waiting periods are to be followed as per the label claims**

## **Disease Scenario**

Disease forecast based on weather parameters during the first fortnight of October, 2017.

### **Fruit crops**

#### **Grape**

- Downy mildew and anthracnose need to be monitored. For the management of downy mildew application of Metalaxyl + Mancozeb (0.2%)/ Al Fosetyl (0.2%)/ Dimethomorph (0.8%) + Mancozeb (0.2%) and for anthracnose spraying with Propineb (0.2%)/ Chlorothalonil (0.2%)/ Carbendazim (0.1%)/ Thiophanate methyl (0.1%) are effective.
- Rust might continue to be noticed in grape vine orchards (var Bangalore Blue) and could be managed by the treatment with Chlorothalonil (0.2%) or Bitertanol (0.2%) or Dinocap (0.3%) + Mancozeb (2%) along with sticker @ 0.5 ml/ l.

#### **Mango**

- Powdery mildew requires attention. At this point of time application of wettable sulphur (0.2%) along with sticker @ 0.5 ml/L is recommended. Anthracnose spots may increase on foliage. Application of Chlorothalonil (0.2%) or Thiophanate methyl (0.2%) or Carbendazim (0.1%) along with sticker (@ 0.5 ml / L) is recommended for the disease management.

#### **Banana**

- Sigatoka leaf spot (*Mycosphaerella* sp.), crown rot (*Fusarium moniliforme* & *Botryodiplodia theobromae*) and anthracnose (*Colletotrichum musae*) of fruits require proper attention. Sigatoka could be managed by spraying Carbendazim (0.1%) or Thiophanate methyl (0.1%) or Tridemorph (0.1%)/ whereas crown rot and anthracnose could be controlled by the pre-harvest sprays involving Carbendazim (0.1%) or Thiophanate methyl (0.1%), besides post harvest dip in Chlorine water (300 ppm) for 10 minutes.
- *Macrophoma* spots may appear on the fruits of Robusta varieties of banana. Application of Carbendazim (0.1%) or Thiophanate methyl (0.1%) is recommended for managing the same.

## **Papaya**

- Infection of Black spot (*Asperisporium caricae*) is increasing. Application of Chlorothalonil (0.2%) Carbendazim (0.1%) Thiophanate methyl (0.1%) Hexaconazole (0.1%) along with the sticker @ 0.5ml/l with good coverage of the lower surface of the foliage is recommended.

## **Vegetable crops**

### **Solanaceous and cucurbits vegetables**

- Powdery mildew requires attention. At this point of time application of wettable sulphur (0.2%) along with sticker @ 0.5 ml/L is recommended.
- Leafspots and Anthracnose spots may increase on foliage. Application of Chlorothalonil (0.2%) along with sticker (@ 0.5 ml / L) is recommended for the disease management.

## **Ornamental crops**

### **Chrysanthemum**

- This is the time for rust and spraying Chlorothalonil (2g/l) or mycobutanol (2g/l) as contact fungicide will reduce the incidence. In severe cases propiconazole (1.5 ml/l) will help in preventing the further spread of the disease.

## **Rose**

- Now the powdery mildew incidence will increase. Spray of azoxystrobin at 0.05% or trifloxystrobin + tebuconazole at 0.1% will reduce the powdery mildew spread.

**CROP WEATHER SITUATION  
METEOROLOGICAL DATA OF  
ICAR-INDIAN INSTITUTE OF HORTICULTURAL RESEARCH  
HESSARAGHATTA LAKE P.O., BANGALORE – 560 089**

**Period: 16<sup>th</sup> to 30<sup>th</sup> November, 2017**

**Latitude: 13°7' N**

**Longitude: 77° 29'E**

**Altitude: 890 M**

Fortnight	Temperature (°C)		Relative Humidity (%)		Evaporation (mm)	Wind speed (km/h)	Total Rainfall (mm)
	Average Max.	Average Min.	Average at 7.30AM	Average at 1.30PM			
November 16 <sup>th</sup> to 30 <sup>th</sup> , 2017	25.8	17.1	82.5	56.5	3.69	1.68	0.00
	(27.6)	(17.8)	(75.0)	( 45.7)	(3.6)	(2.8)	(26.8)

\* Figures in the parentheses indicate the average values during the corresponding period for the previous 5 years

**Fortnight from 16<sup>th</sup> to 30<sup>th</sup> November, 2017**

During the second fortnight of the month i.e., from November 16<sup>th</sup> to 30<sup>th</sup>, 2017, the average maximum and minimum temperatures were higher by 0.6<sup>0</sup>C respectively, as compared to the previous fortnight. The average maximum and minimum temperatures were lower by 0.3<sup>0</sup>C and 1.5<sup>0</sup>C respectively, as compared to the average values of the corresponding period for the previous five years. The percent relative humidity during morning was higher by 1.7% and during afternoon was lower by 3.2% respectively, as compared to the previous fortnight. There was no rainfall during the fortnight.

**Crop weather situation**

As there was no rainfall at all during this period, required irrigation may be given to the standing fruit crops and vegetable crops. Field preparation and other agronomic measures may be taken up for late rabi crops. Top dressing of required nutrients may be given to the standing early rabi vegetables. The weather data of the fortnight was suitable for the cultivation of Oyster Mushroom (*Pleurotus spp.*) and Shiitake mushroom.

**Incidence of pests and diseases**

Under the prevailing weather situation, following pests are expected under Bangalore conditions on various horticultural crops. Various management options for their management are mentioned below.

**Mango**

**Leaf hoppers**

➤ Initial level of leafhopper incidence can be managed by spraying Azadirachtin @3ml/l.

**Tomato**

**Tomato Fruit borer (*Tuta absoluta*)**

- Population of tomato fruit borer will increase and can be managed by spraying Spinosad @0.3ml/ or Spinetoram @1ml/l.

## **Chilli**

### **Thrips**

- Thrips incidence may shoot up under such weather conditions. Recommended to spray Fipronil @1ml/l.

### **Rose**

#### **Aphids**

- Aphid infestation may further increase on rose in open field conditions. Recommended to spray Dimethoate @2ml/l.

### **Gerbera**

#### **Leaf miner**

- Under polyhouse conditions in gerbera crop leafminer infestation will be increased. Recommended to spray cypermethrin@1ml/l

**\*Safe waiting periods are to be followed as per the label claims**

## **Disease Scenario**

Disease forecast based on weather parameters during the second fortnight of November, 2017.

### **Fruit crops**

#### **Grapes**

- Downy mildew and anthracnose needs to be monitored. For the management of downy mildew application of Metalaxyl + Mancozeb (0.2%)/ Al Fosetyl (0.2%)/ Dimethomorph (0.8%) + Mancozeb (0.2%) and for anthracnose spraying with Propineb (0.2%)/ Chlorothalonil (0.2%)/ Carbendazim (0.1%)/ Thiophanate methyl (0.1%) are effective.

#### **Mango**

- Powdery mildew requires attention. At this point of time application of wettable sulphur (0.2%) along with sticker @ 0.5 ml/L is recommended. Anthracnose spots may increase on foliage. Application of Chlorothalonil (0.2%) or Thiophanate methyl (0.2%) or Carbendazim (0.1%) along with sticker (@ 0.5 ml / L) is recommended for the disease management.

#### **Banana**

- Sigatoka leaf spot (*Mycosphaerella* sp.), crown rot (*Fusarium moniliforme* & *Botryodiplodiatheobromae*) and anthracnose (*Colletotrichum musae*) of fruits require proper attention. Sigatoka could be managed by spraying Carbendazim (0.1%) or Thiophanate methyl (0.1%) or Tridemorph (0.1%)/ whereas crown rot and anthracnose could be controlled by the pre-harvest sprays involving Carbendazim (0.1%) or Thiophanate methyl (0.1%), besides post harvest dip in Chlorine water (300 ppm) for 10 minutes.

#### **Papaya**

- Infection of Black spot (*Asperisporium caricae*) is increasing. Application of Chlorothalonil (0.2%) Carbendazim (0.1%)/ Thiophanate methyl (0.1%)/ Hexaconazole (0.1%) along with the sticker @ 0.5ml/l with good coverage of the lower surface of the foliage is recommended.

## **Vegetable crops**

### **Solanaceous and cucurbits vegetables**

- Powdery mildew requires attention. At this point of time application of wettable sulphur (0.2%) along with sticker @ 0.5 ml/L is recommended.
- Leafspots and Anthracnose spots may increase on foliage. Application of Chlorothalonil (0.2%) along with sticker (@ 0.5 ml / L) is recommended for the disease management.

### **Ornamental crops**

#### **Chrysanthemum**

- This is the time for rust and spraying Chlorothalonil (2g/l) or mycoblutanol (2g/l) as contact fungicide will reduce the incidence. In severe cases propiconazole (1.5 ml/l) will help in preventing the further spread of the disease.

**CROP WEATHER SITUATION  
METEOROLOGICAL DATA OF  
ICAR-INDIAN INSTITUTE OF HORTICULTURAL RESEARCH  
HESSARAGHATTA LAKE P.O., BANGALORE – 560 089**

**Period: 1<sup>st</sup> to 15<sup>th</sup> December, 2017**

**Latitude: 13<sup>o</sup>7<sup>1</sup> N**

**Longitude: 77<sup>o</sup> 29<sup>1</sup>E**

**Altitude: 890 M**

Fortnight	Temperature (°C)		Relative Humidity (%)		Evaporation (mm)	Wind speed (km/h)	Total Rainfall (mm)
	Average Max.	Average Min.	Average at 7.30AM	Average at 1.30PM			
December 1 <sup>st</sup> to 15 <sup>th</sup> , 2017	27.5	15.9	83.1	52.1	2.93	2.32	5.6
	(26.7)	(17.9)	(78.5)	( 52.2)	(3.6)	(2.9)	(14.0)

\* Figures in the parentheses indicate the average values during the corresponding period for the previous 5 years

**Fortnight from 1<sup>st</sup> to 15<sup>th</sup> December, 2017**

During the first fortnight of the month i.e., from December 1<sup>st</sup> to 15<sup>th</sup>, 2017, the average maximum temperature was higher by 1.7<sup>o</sup>C and minimum temperature was lower by 1.2<sup>o</sup>C respectively, as compared to the previous fortnight. The average maximum temperature was lower by 0.9<sup>o</sup>C and minimum temperature was higher by 0.1<sup>o</sup>C respectively, as compared to the average values of the corresponding period for the previous five years. The percent relative humidity during morning was higher by 0.6% while at afternoon it was lower by 4.4% respectively, as compared to the previous fortnight. There was 5.6mm rainfall during the fortnight.

**Crop weather situation**

There was very less rainfall compared to average of last 5 years. Hence supplemental irrigation may be given to already planted rabi vegetables . Similarly top dressing of N may be given @50 kg /ha. Planting of late rabi vegetables may be completed in this month. Due to low temperature, the availability and uptake of nutrients will be low. Foliar application of Vegetable special may be given to supply the required micronutrients. The weather conditions during the fortnight were suitable for the cultivation of Shiitake mushroom, king oyster mushroom and other oyster mushroom species. Humidity being low, there is a need to take extra care for humidity maintenance.

**Incidence of pests and diseases**

Under the prevailing weather situation, following pests are expected under Bangalore conditions on various horticultural crops. Various management options for their management are mentioned below.

**Mango**

**Leaf hoppers**

➤ Initial level of leafhopper incidence can be managed by spraying Azadirachtin @3ml/l.

## **Tomato**

### **Tomato Fruit borer (*Tuta absoluta*)**

- Population of tomato fruit borer will increase and can be managed by spraying Spinosad @0.3ml/ or Spinetoram @1ml/l.

## **Chilli**

### **Thrips**

- Thrips incidence may shoot up under such weather conditions. Recommended to spray Fipronil @1ml/l.

## **Rose**

### **Aphids**

- Aphid infestation may further increase on rose in open field conditions. Recommended to spray Dimethoate @2ml/l.

## **Gerbera**

### **Leaf miner**

- Under polyhouse conditions in gerbera crop leafminer infestation will be increased. Recommended to spray cypermethrin@1ml/l

**\*Safe waiting periods are to be followed as per the label claims**

## **Disease Scenario**

Disease forecast based on weather parameters during the first fortnight of December, 2017.

## **Fruit crops**

### **Grape**

- Downy mildew and anthracnose are important diseases in this period. For the management of downy mildew application of Metalyxl + Mancozeb (0.2%)/ Al Fosetyl (0.2%)/ Dimethomorph (0.8%) + Mancozeb (0.2%) and for anthracnose spraying with Propineb (0.2%)/ Chlorothalonil (0.2%)/ Carbendazim (0.1%)/ Thiophanate methyl (0.1%) are effective.

### **Mango**

- Powdery mildew requires attention. At this point of time application of wettable sulphur (0.2%) along with sticker @ 0.5 ml/L is recommended. Wettable Sulphur should not be applied if the temperature is higher. Anthracnose spots may increase on foliage. Application of Chlorothalonil (0.2%) or Thiophanate methyl (0.2%) or Carbendazim (0.1%) along with sticker (@ 0.5 ml / L) is recommended for the disease management.

### **Banana**

- Sigatoka leaf spot (*Mycosphaerella* sp.), crown rot (*Fusarium moniliforme* & *Botryodiplodia theobromae*) and anthracnose (*Colletotrichum musae*) of fruits require proper attention. Sigatoka could be managed by spraying Carbendazim (0.1%) or Thiophanate methyl (0.1%) or Tridemorph (0.1%)/ whereas crown rot and anthracnose could be controlled by the pre-harvest sprays involving Carbendazim (0.1%) or Thiophanate methyl (0.1%), besides post harvest dip in Chlorine water (300 ppm) for 10 minutes.



## **Pomegranate**

- Intensity of leaf and fruit spot disease caused by *Pseudocercospora punicae* and anthracnose of fruit and leaf (*C. gloeosporioides*) may remain moderate. Application of Chlorothalonil (0.2%) /Antracol (0.2%)/ Carbendazim (0.1%)/ Thiophanate methyl (0.1%)/ Hexaconazole (0.1%) along with the sticker @ 0.5ml/l is effective for the disease control.

## **Papaya**

- Infection of Black spot (*Asperisporium caricae*) is increasing. Application of Chlorothalonil (0.2%) Carbendazim (0.1%)/ Thiophanate methyl (0.1%)/ Hexaconazole (0.1%) along with the sticker @ 0.5ml/l with good coverage of the lower surface of the foliage is recommended.

## **Vegetable crops**

### **Solanaceous vegetables**

- Powdery mildew requires attention. At this point of time application of wettable sulphur (0.2%) along with sticker @ 0.5 ml/L is recommended. Leafspots and Anthracnose spots may increase on foliage. Application of Chlorothalonil (0.2%) along with sticker (@ 0.5 ml / L) is recommended for the disease management.

### **Cucurbits vegetables**

- Powdery mildew may become problem. Application of chlorothalonil (0.2%) as preventive spray and tebuconazole (0.1%) at severe stages may help. For the downy mildews spray of ridomil 0.1% will help.

### **Ornamental crops**

#### **Chrysanthemum**

- This is the time for rust and spraying chlorothalonil at 2g/l will prevent the disease incidence. While propiconazole at 0.1% will help as curative measure.

#### **Rose**

- Powdery mildew of rose in polyhouse as well as field grown crops will increase. Tebuconazole or hexaconazole (at 0.1%) or azoxystrobin at 0.05% would reduce the disease severity.

**CROP WEATHER SITUATION  
METEOROLOGICAL DATA OF  
ICAR-INDIAN INSTITUTE OF HORTICULTURAL RESEARCH  
HESSARAGHATTA LAKE P.O., BANGALORE – 560 089**

**Period: 16<sup>th</sup> to 31<sup>st</sup> December, 2017**

**Latitude: 13<sup>o</sup>7<sup>1</sup> N**

**Longitude: 77<sup>o</sup> 29<sup>E</sup>**

**Altitude: 890 M**

Fortnight	Temperature (°C)		Relative Humidity (%)		Evaporation (mm)	Wind speed (km/h)	Total Rainfall (mm)
	Average Max.	Average Min.	Average at 7.30AM	Average at 1.30PM			
December 16 <sup>th</sup> to 31 <sup>st</sup> , 2017	27.0	12.5	76.6	39.4	4.2	2.6	0.00
	(28.0)	(17.2)	(75.1)	(48.1)	(4.1)	(3.8)	(0.0)

\* Figures in the parentheses indicate the average values during the corresponding period for the previous 5 years

**Fortnight from 16<sup>th</sup> to 31<sup>st</sup> December, 2017**

During the second fortnight of the month i.e., from December 16<sup>th</sup> to 31<sup>st</sup>, 2017, the average maximum and minimum temperatures were lower by 0.5<sup>o</sup>C and 3.4<sup>o</sup>C respectively, as compared to the previous fortnight. The average maximum temperature was higher by 1.3<sup>o</sup>C and minimum temperature was lower by and 0.7<sup>o</sup>C respectively, as compared to the average values of the corresponding period for the previous five years. The percent relative humidity during morning and afternoon were lower by 6.5% and 12.7% respectively, as compared to the previous fortnight. There was no rainfall during the fortnight.

**Crop weather situation**

The average maximum and minimum temperatures for this period are lower than the average values for the corresponding period for the previous five years. Due to low temperatures water and nutrient absorption will be lower. Hence micro nutrient formulations like vegetable special may be given to standing rabi vegetable crops. The weather data of the fortnight was suitable for the cultivation of Shiitake mushroom, king oyster mushroom and other oyster mushroom species. Humidity being low, there is a need to take extra care for humidity maintenance.

**Incidence of pests and diseases**

Under the prevailing weather conditions, the following pests are expected in Bangalore on various horticultural crops. Various management options for their management are mentioned below:

**Mango**

- Leafhopper incidence can be managed by spraying Azadirachtin @3ml/l.

**Guava**

- Tea mosquito bug incidence was noticed. Weekly spraying of *Beauveria bassiana* @ 1x10<sup>9</sup> spores / ml will reduce the pest damage.

## **Tomato**

- Population of tomato fruit borer, *Tuta obsuluta* will increase and can be managed by spraying Spinosad @0.3ml/ or Spinetoram @1ml/lt.

## **Cabbage**

- Diamond Back moth *Plutella xylostella* incidence was noticed. Spray IHR neem soap at 10g/l will help in minimizing or repelling the egg laying by adult moths.

## **Rose**

- Aphid infestation may further increase on rose in open field conditions. Recommended to spray Dimethoate @2ml/lt.

## **Gerbera**

- Under polyhouse conditions in gerbera crop leafminer infestation will be increased. Recommended to spray cypermethrin@1ml/lt.

\*Safe waiting periods are to be followed as per the label claims

## **Disease Scenario**

Disease forecast based on weather parameters during the second fortnight of December, 2017.

## **Fruit crops**

### **Grapes**

- Anthracnose and Powdery mildew infection are supposed to increase may be noticed. For anthracnose application of Chlorothalonil (0.2%) or Bitertanol (0.2%) or Dinocap (0.3%) + Mancozeb (2%) or thiophanate methyl (0.1%) whereas for powdery mildew Application of Myclobutanil (0.1%) or Triadimefon (0.1%) along with sticker @ 0.5 ml/ l is recommended for the management of disease.

### **Banana**

- Sigatoka leaf spot (*Mycospheralla* sp.), crown rot (*Fusarium moniliforme* & *Botryodiplodia theobromae*) and anthracnose (*Colletotrichum musae*) Macrophoma fruit spot disease needs proper attention. Sigatoka could be managed by spraying Carbendazim (0.1%) or Thiophanate methyl (0.1%) or Tridemorph (0.1%)/ whereas crown rot, anthracnose and Macrophoma fruit spot disease (Specially on var. Grand Naine) could be controlled by the pre-harvest sprays involving Carbendazim (0.1%) or Thiophanate methyl (0.1%), besides post harvest dip in Chlorine water (300 ppm) for 10 minutes.

### **Mango**

- Powdery mildew requires attention. At this point of time application of wettable sulphur (0.2%) along with sticker @ 0.5 ml/L is recommended. Anthracnose spots might further increase on foliage. Application of Chlorothalonil (0.2%) or Thiophanate methyl (0.2%) or Carbendazim (0.1%) along with sticker (@ 0.5 ml / L) is recommended for the disease management.
- Sooty mould should be still taken care. Application of Copper oxychloride (0.3%) along with sticker (@ 0.5 ml / L) is recommended. Further hopper and other insect management is important with suitable insecticides (Imidacloprid @ 0.5%).

### **Pomegranate**

- Intensity of leaf and fruit spot disease and anthracnose of fruit and leaf may increase further. Application of Chlorothalonil (0.2%) /Antracol (0.2%)/ Carbendazim (0.1%)/ Thiophanate methyl (0.1%)/ Hexaconazole (0.1%) along with the sticker @ 0.5ml/l is effective for the disease control.

## **Papaya**

- Infection of Black spot (*Asperisporium caricae*) may further increase. Whereas powdery mildew (*Oidium caricae*) infection may also be noticed. Application of Chlorothalonil (0.2%), Carbendazim (0.1%)/ Thiophanate methyl (0.1%)/ Hexaconazole (0.1%) along with the sticker @ 0.5ml/l with good coverage of the lower surface of the foliage is recommended.

## **Vegetable crops**

### **Crucifers (Powdery mildew)**

- Spray wettable sulphur or tebuconazole at 0.2% at the beginning of the infection with sticker at 0.5ml per lt of spray liquid with good coverage of the lower surface on the leaves.

### **Tomato (Powdery mildew)**

- Spray hexaconazole or tebuconazole 0.2% at the beginning of the infection with sticker as mentioned above.

## **Floriculture & Medicinal Crops**

### **Rose**

#### **Powdery mildew**

- Spray with azoxystrobin at 0.05% with sticker as mentioned above.

#### **Black spot**

- Spray mancozeb 0.2% at the initial stages and trifloxystrobin or propiconazole (0.1%) if infection is severe at later stages.

### **Betel vine (Powdery mildew)**

- Spray wettable sulphur at 0.2%. Spray of systemic fungicides not recommended. Maintenance of good aeration and proper drainage are important.