

ICAR Research Complex for N.E.H. Region Manipur Centre, Lamphelpat, Imphal - 795 004



"Integrated Agromet Advisory Services"

MANIPUR BULLETIN 21st May, 2013

Bishnupur

IAAS, ICAR-RC Manipur Centre in association with India Meteorological Department, Regional Meteorological Centre, Guwahati and Northern Hemisphere Analysis Centre, New Delhi, Ministry of Earth Science, Govt. of India reports the weather forecasts for the next five days, i.e., from 22nd to 26th May, 2013 as given below:

Significant past weather for the preceding bi-weekly of	
Imphal - West (17 th to 20 th May, 2013)	

During the past four days the sky was partly cloudy to cloudy but mainly clear during afternoon hours of 20^{th} May. **41.7** mm rainfall was recorded during past four days. Maximum temperature range observed was 25.7-31.3 °C, range of minimum temperature observed was 18.0-20.5 °C, mean relative humidity observed in morning and afternoon were 87.75 % and 71.0 % respectively. The average wind speed range was 2.3-5.8 km/hr.

Weather forecast for next five days of Bishnupur (22nd to 26th May, 2013)

It is likely to have light to moderate rains and thundery showers during next five days. The sky is likely to be cloudy with maximum temp. of 25.0 - 30.0 °C and minimum temp. of 18.0 - 21.0 °C. The maximum RH is likely to attain a max value of 100 % and minimum RH of 93 %. The average wind speed during next five days may reach upto max. value of 4 km/hr.

Main Weather Observation

Kalpana 1Cloud Imagery at 0530 hrs IST shows low/ medium clouds over parts of northeast

Weather Forecast for next 3 days (upto 0830 hours IST of 24th May, 2013)

Rain/thundershowers would occur at many places over Manipur

Weather warning during next 3 days

Thundersquall would occur at one or two places over Manipur during next 48 hrs

Weather Outlook for subsequent 4 days from 24th to 28th May, 2013

Name of the crop	Stage	Pest and disease infestation	Agro-meteorological advisories
Field Crops			•
Rice	(Pre-kharif) Tillering to panicle initiation		 Maintain water depth of 5-8 cm. At 45 days of transplanting (panicle initiation stage), apply 33 kg Urea.
	Kharif		Seed beds may be prepared in terraces and valley. 60 kg seeds may be used to sow in 700 m2 nursery area to transplant seedlings for one hectare. Soak seeds for 24 hrs then incubate for 36 hrs if the weather is warm but if temp. falls down then incubate it for 48hrs. Sprouted seeds may be sown in scientific plots of width 1.5m and length may vary as per field conditions.
Maize	Vegetative (Summer maize) Cob formation to		 Weeding may be done. Maintain proper drainage system to drain out excess water. Harvest crops for cobs and for seeds harvest when the colour of silks turns
	cob maturity (Rabi maize)		black.
Groundnut & soybean	sowing and early vegetative		- As a basal dose, apply NPK in the ratio (20:60:40) kg in 1 ha land. Sowing in prepared land may be done. Drain out excess water from crop field. Seed rate for 1 ha: 100-110 Kernels (groundnut) and 50 kg (Soybean).
Blackgram & Rice bean	Sowing		- Sowing may be done. Field should be made weed free.
Storage			- Clean and store the seeds in RC-seed bins after proper drying. Check for germination of seeds or fungal growth.



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Horticulture C	rops		
		lying area, ponds/chanr	nels/ drains may be made to drain out water accumulated in the field and the
	be used to raise the		•
French Bean	Flowering to fruiting		- At this stage, surrounding area of the crop fields must be kept clean to avoid Hairy caterpillars. Proper drainage must be maintained.
Chilli/ tomato/ brinjal	- Fruiting stage		- No cultural practice is advised as the field is still wet. For seeds mature fruits may be collected without disturbing the plant. Avoid direct contact of fruit with soil.
Cauliflower	Nursery		- Preparation for early cauliflower in the upland area may be done. It may also be raised, if movable rain protective structures are available with the farmers.
fruit plants like Orange, Lime, Lemon, Litchi, etc./ Tree bean	Planting		- In hills and upland area preparation of pits for planting fruits may be done
Animal Science	es		
Name of the animal	Growth stage	Disease/ infestation	Agro-meteorological advisories
Pig	Above 3 months of age	- Swine Fever	 - Vaccinate with <i>Swine Fever</i> vaccine as per prescribed dose but de-worm using Panacur tab @ 1.5mg/10kg body weight before vaccination. Don't use Korean strain vaccine. - Vaccinate all the susceptible animals against the FMD.
Goat	All age groups except three months or below	- Fascioliosis	- Give Tolzan-F 15ml orally/ 300kg b. wt. It must be associated with vitamins like Livozyme @ 50ml twice daily.
Cattle / Buffalo/ Mithun	All age groups except three months or below	- FMD - Fascioliosis	 - Vaccinate all the susceptible animals against the FMD. - Give Tolzan-F 90ml orally/ 300kg b. wt. It must be associated with vitamins like Livozyme @ 50ml twice daily. - Apply Butox @3ml/lit of water while brushing the animals.
Poultry	All susceptible age groups	Coccidiosis	- Poultry must be provided <i>Coccidiostat/ Supercox</i> (@ 1g/lit of drinking water) + plus 150gm of Glucose and vit K for 5 to 7 days.
		Pox	- Vaccinate against pox.
		Management	- To prevent protozoan, bacterial, fungal diseases, litter should be kept dry and turned regularly. Apply lime powder @ 2.5 kg per 100 sq. ft. area in litter material.
Fisheries			•
Type of Farming	Stage	Management	Agro-metrological advisories
Carp culture	Brooders	Pond and water	Ensure good quality/ clean water free from unwanted plants and animals with a minimum depth of 1.5 m. Fish feed pellet or rice bran & oil cakes (in ratio 1:1) should be provided @ 3-5% body weight per day in 2-3 splits. Spray CIFAX on the surface of the pond water. Male and female brooders must be kept in separate tanks.
	Breeding	pond	■ Fish hormones like ovaprim, ovatide or Wova-FH can be injected in both the brooders @ 0.5 - 0.7 ml/kg of fish.
	Hatcheries	water	• Hatching can be done in traditional hapas having outer & inner hapas or circular hatcheries. A mild current with fine shower is needed for circular hatcheries. Feed should not be given for 3 days.
	Nurseries	ponds	- Stock 20-30 lakhs spawns in one hectare water. Water depth should be more than 1.0 m. Feeding should be given@5-10% body weight/day.



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"Integrated Agromet Advisory Services"

MANIPUR BULLETIN 21st May, 2013

Chandel

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Weather forecast for next five days of Chandel (22nd to 26th May, 2013)

It is likely to have light to moderate rains and thundery showers during next five days. The sky is likely to be cloudy with maximum temp. of 27.0 - 32.0 °C and minimum temp. of 19.0 – 22.0 °C. The RH is likely to remain above 89 % during next five days. The average wind speed during next five days may reach upto max. value of 3 km/hr.

Main Weather Observation

Kalpana 1Cloud Imagery at 0530 hrs IST shows low/ medium clouds over parts of northeast

Weather Forecast for next 3 days (upto 0830 hours IST of 24th May, 2013)

Rain/thundershowers would occur at many places over Manipur

Weather warning during next 3 days

Thundersquall would occur at one or two places over Manipur during next 48 hrs

Weather Outlook for subsequent 4 days from 24th to 28th May, 2013

Name of the crop	Stage	Pest and disease infestation	Agro-meteorological advisories
Field Crops	<u>. </u>		•
Rice	(Pre-kharif) Tillering to panicle initiation		 Maintain water depth of 5-8 cm. At 45 days of transplanting (panicle initiation stage), apply 33 kg Urea.
	Kharif		Seed beds may be prepared in terraces and valley. 60 kg seeds may be used to sow in 700 m2 nursery area to transplant seedlings for one hectare. Soak seeds for 24 hrs then incubate for 36 hrs if the weather is warm but if temp. falls down then incubate it for 48hrs. Sprouted seeds may be sown in scientific plots of width 1.5m and length may vary as per field conditions.
Maize	Vegetative (Summer maize)		Weeding may be done.Maintain proper drainage system to drain out excess water.
	Cob formation to cob maturity (Rabi maize)		Harvest crops for cobs and for seeds harvest when the colour of silks turns black.
Groundnut & soybean	sowing and early vegetative		- As a basal dose, apply NPK in the ratio (20:60:40) kg in 1 ha land. Sowing in prepared land may be done. Drain out excess water from crop field. Seed rate for 1 ha: 100-110 Kernels (groundnut) and 50 kg (Soybean).
Blackgram & Rice bean	Sowing		- Sowing may be done. Field should be made weed free.
Storage			- Clean and store the seeds in RC-seed bins after proper drying. Check for germination of seeds or fungal growth.



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Horticulture C	rops		
		lying area, ponds/chanr	nels/ drains may be made to drain out water accumulated in the field and the
	be used to raise the		•
French Bean	Flowering to fruiting		- At this stage, surrounding area of the crop fields must be kept clean to avoid Hairy caterpillars. Proper drainage must be maintained.
Chilli/ tomato/ brinjal	- Fruiting stage		- No cultural practice is advised as the field is still wet. For seeds mature fruits may be collected without disturbing the plant. Avoid direct contact of fruit with soil.
Cauliflower	Nursery		- Preparation for early cauliflower in the upland area may be done. It may also be raised, if movable rain protective structures are available with the farmers.
fruit plants like Orange, Lime, Lemon, Litchi, etc./ Tree bean	Planting		- In hills and upland area preparation of pits for planting fruits may be done
Animal Science	es		
Name of the animal	Growth stage	Disease/ infestation	Agro-meteorological advisories
Pig	Above 3 months of age	- Swine Fever	 - Vaccinate with <i>Swine Fever</i> vaccine as per prescribed dose but de-worm using Panacur tab @ 1.5mg/10kg body weight before vaccination. Don't use Korean strain vaccine. - Vaccinate all the susceptible animals against the FMD.
Goat	All age groups except three months or below	- Fascioliosis	- Give Tolzan-F 15ml orally/ 300kg b. wt. It must be associated with vitamins like Livozyme @ 50ml twice daily.
Cattle / Buffalo/ Mithun	All age groups except three months or below	- FMD - Fascioliosis	 - Vaccinate all the susceptible animals against the FMD. - Give Tolzan-F 90ml orally/ 300kg b. wt. It must be associated with vitamins like Livozyme @ 50ml twice daily. - Apply Butox @3ml/lit of water while brushing the animals.
Poultry	All susceptible age groups	Coccidiosis	- Poultry must be provided <i>Coccidiostat/ Supercox</i> (@ 1g/lit of drinking water) + plus 150gm of Glucose and vit K for 5 to 7 days.
		Pox	- Vaccinate against pox.
		Management	- To prevent protozoan, bacterial, fungal diseases, litter should be kept dry and turned regularly. Apply lime powder @ 2.5 kg per 100 sq. ft. area in litter material.
Fisheries			•
Type of Farming	Stage	Management	Agro-metrological advisories
Carp culture	Brooders	Pond and water	Ensure good quality/ clean water free from unwanted plants and animals with a minimum depth of 1.5 m. Fish feed pellet or rice bran & oil cakes (in ratio 1:1) should be provided @ 3-5% body weight per day in 2-3 splits. Spray CIFAX on the surface of the pond water. Male and female brooders must be kept in separate tanks.
	Breeding	pond	■ Fish hormones like ovaprim, ovatide or Wova-FH can be injected in both the brooders @ 0.5 - 0.7 ml/kg of fish.
	Hatcheries	water	• Hatching can be done in traditional hapas having outer & inner hapas or circular hatcheries. A mild current with fine shower is needed for circular hatcheries. Feed should not be given for 3 days.
	Nurseries	ponds	- Stock 20-30 lakhs spawns in one hectare water. Water depth should be more than 1.0 m. Feeding should be given@5-10% body weight/day.



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MANIPUR BULLETIN 21st May, 2013

Churachandpur

IAAS, ICAR-RC Manipur Centre in association with India Meteorological Department, Regional Meteorological Centre, Guwahati and Northern Hemisphere Analysis Centre, New Delhi, Ministry of Earth Science, Govt. of India reports the weather forecasts for the next five days, i.e., from 22nd to 26th May, 2013 as given below:

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Weather forecast for next five days of Churachandpur (22nd to 26th May, 2013)

It is likely to have light to moderate rains and thundery showers during next five days. The sky is likely to be cloudy with maximum temp. of 24.0 - 27.0 $^{\circ}\text{C}$ and minimum temp. of 18.0 – 21.0 $^{\circ}\text{C}$. The RH is likely to remain above 93 % during next five days. The average wind speed during next five days may reach upto max. value of 3 km/hr.

Main Weather Observation

Kalpana 1Cloud Imagery at 0530 hrs IST shows low/ medium clouds over parts of northeast

Weather Forecast for next 3 days (upto 0830 hours IST of 24th May, 2013)

Rain/thundershowers would occur at many places over Manipur

Weather warning during next 3 days

Thundersquall would occur at one or two places over Manipur during next 48 hrs

Weather Outlook for subsequent 4 days from 24th to 28th May, 2013

Name of the crop	Stage	Pest and disease infestation	Agro-meteorological advisories
Field Crops	<u>. </u>		•
Rice	(Pre-kharif) Tillering to panicle initiation		 Maintain water depth of 5-8 cm. At 45 days of transplanting (panicle initiation stage), apply 33 kg Urea.
	Kharif		Seed beds may be prepared in terraces and valley. 60 kg seeds may be used to sow in 700 m2 nursery area to transplant seedlings for one hectare. Soak seeds for 24 hrs then incubate for 36 hrs if the weather is warm but if temp. falls down then incubate it for 48hrs. Sprouted seeds may be sown in scientific plots of width 1.5m and length may vary as per field conditions.
Maize	Vegetative (Summer maize)		Weeding may be done.Maintain proper drainage system to drain out excess water.
	Cob formation to cob maturity (Rabi maize)		Harvest crops for cobs and for seeds harvest when the colour of silks turns black.
Groundnut & soybean	sowing and early vegetative		- As a basal dose, apply NPK in the ratio (20:60:40) kg in 1 ha land. Sowing in prepared land may be done. Drain out excess water from crop field. Seed rate for 1 ha: 100-110 Kernels (groundnut) and 50 kg (Soybean).
Blackgram & Rice bean	Sowing		- Sowing may be done. Field should be made weed free.
Storage			- Clean and store the seeds in RC-seed bins after proper drying. Check for germination of seeds or fungal growth.



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Horticulture C	rops		
			nels/ drains may be made to drain out water accumulated in the field and the
	be used to raise the	beds level.	
French Bean	Flowering to fruiting		- At this stage, surrounding area of the crop fields must be kept clean to avoid Hairy caterpillars. Proper drainage must be maintained.
Chilli/ tomato/	- Fruiting stage		- No cultural practice is advised as the field is still wet. For seeds mature fruits
brinjal			may be collected without disturbing the plant. Avoid direct contact of fruit with soil.
Cauliflower	Nursery		- Preparation for early cauliflower in the upland area may be done. It may also be raised, if movable rain protective structures are available with the farmers.
fruit plants like Orange, Lime, Lemon, Litchi, etc./ Tree bean	Planting		- In hills and upland area preparation of pits for planting fruits may be done
Animal Science	es		
Name of the animal	Growth stage	Disease/ infestation	Agro-meteorological advisories
Pig	Above 3 months of age	- Swine Fever	 - Vaccinate with <i>Swine Fever</i> vaccine as per prescribed dose but de-worm using Panacur tab @ 1.5mg/10kg body weight before vaccination. Don't use Korean strain vaccine. - Vaccinate all the susceptible animals against the FMD.
Q 4	A 11	- FMD - Fascioliosis	*
Goat	All age groups except three months or below	- Fascionosis	- Give Tolzan-F 15ml orally/ 300kg b. wt. It must be associated with vitamins like Livozyme @ 50ml twice daily.
Cattle / Buffalo/ Mithun	All age groups except three months or below	- FMD - Fascioliosis	 - Vaccinate all the susceptible animals against the FMD. - Give Tolzan-F 90ml orally/ 300kg b. wt. It must be associated with vitamins like Livozyme @ 50ml twice daily.
			- Apply Butox @3ml/lit of water while brushing the animals.
Poultry	All susceptible age groups	Coccidiosis	- Poultry must be provided <i>Coccidiostat/ Supercox</i> (@ <i>1g/lit of drinking water</i>) + plus 150gm of Glucose and vit K for 5 to 7 days.
		Pox	- Vaccinate against pox.
		Management	- To prevent protozoan, bacterial, fungal diseases, litter should be kept dry and turned regularly. Apply lime powder @ 2.5 kg per 100 sq. ft. area in litter material.
Fisheries	•	•	
Type of Farming	Stage	Management	Agro-metrological advisories
Carp culture	Brooders	Pond and water	Ensure good quality/ clean water free from unwanted plants and animals with a minimum depth of 1.5 m. Fish feed pellet or rice bran & oil cakes (in ratio 1:1) should be provided @ 3-5% body weight per day in 2-3 splits. Spray CIFAX on the surface of the pond water. Male and female brooders must be kept in separate tanks.
	Breeding	pond	• Fish hormones like ovaprim, ovatide or Wova-FH can be injected in both the brooders @ 0.5 - 0.7 ml/kg of fish.
	Hatcheries	water	• Hatching can be done in traditional hapas having outer & inner hapas or circular hatcheries. A mild current with fine shower is needed for circular hatcheries. Feed should not be given for 3 days.
	Nurseries	ponds	- Stock 20-30 lakhs spawns in one hectare water. Water depth should be more than 1.0 m. Feeding should be given@5-10% body weight/day.



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Imphal-East

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Weather forecast for next five days of Imphal - East (22nd to 26th May, 2013)

It is likely to have light to moderate rains and thundery showers during next five days. The sky is likely to be cloudy with maximum temp. of 25.0 - 30.0 °C and minimum temp. of 18.0 - 21.0 °C. The maximum RH is likely to attain a max value of 98 % and minimum RH of 93 %. The average wind speed during next five days may reach upto max. value of 4 km/hr.

Main Weather Observation

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Weather Forecast for next 3 days (upto 0830 hours IST of 24th May, 2013)

Rain/thundershowers would occur at many places over Manipur

Weather warning during next 3 days

Thundersquall would occur at one or two places over Manipur during next 48 hrs

Weather Outlook for subsequent 4 days from 24th to 28th May, 2013

Name of the crop	Stage	Pest and disease infestation	Agro-meteorological advisories
Field Crops	<u>. </u>		•
Rice	(Pre-kharif) Tillering to panicle initiation		 Maintain water depth of 5-8 cm. At 45 days of transplanting (panicle initiation stage), apply 33 kg Urea.
	Kharif		Seed beds may be prepared in terraces and valley. 60 kg seeds may be used to sow in 700 m2 nursery area to transplant seedlings for one hectare. Soak seeds for 24 hrs then incubate for 36 hrs if the weather is warm but if temp. falls down then incubate it for 48hrs. Sprouted seeds may be sown in scientific plots of width 1.5m and length may vary as per field conditions.
Maize	Vegetative (Summer maize)		Weeding may be done.Maintain proper drainage system to drain out excess water.
	Cob formation to cob maturity (Rabi maize)		Harvest crops for cobs and for seeds harvest when the colour of silks turns black.
Groundnut & soybean	sowing and early vegetative		- As a basal dose, apply NPK in the ratio (20:60:40) kg in 1 ha land. Sowing in prepared land may be done. Drain out excess water from crop field. Seed rate for 1 ha: 100-110 Kernels (groundnut) and 50 kg (Soybean).
Blackgram & Rice bean	Sowing		- Sowing may be done. Field should be made weed free.
Storage			- Clean and store the seeds in RC-seed bins after proper drying. Check for germination of seeds or fungal growth.



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Horticulture C	rops		
			nels/ drains may be made to drain out water accumulated in the field and the
	be used to raise the	beds level.	
French Bean	Flowering to fruiting		- At this stage, surrounding area of the crop fields must be kept clean to avoid Hairy caterpillars. Proper drainage must be maintained.
Chilli/ tomato/	- Fruiting stage		- No cultural practice is advised as the field is still wet. For seeds mature fruits
brinjal			may be collected without disturbing the plant. Avoid direct contact of fruit with soil.
Cauliflower	Nursery		- Preparation for early cauliflower in the upland area may be done. It may also be raised, if movable rain protective structures are available with the farmers.
fruit plants like Orange, Lime, Lemon, Litchi, etc./ Tree bean	Planting		- In hills and upland area preparation of pits for planting fruits may be done
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Name of the animal	Growth stage	Disease/ infestation	Agro-meteorological advisories
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Type of Farming	Stage	Management	Agro-metrological advisories
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Maize	Vegetative (Summer maize)		Weeding may be done.Maintain proper drainage system to drain out excess water.
	Cob formation to cob maturity (Rabi maize)		Harvest crops for cobs and for seeds harvest when the colour of silks turns black.
Groundnut & soybean	sowing and early vegetative		- As a basal dose, apply NPK in the ratio (20:60:40) kg in 1 ha land. Sowing in prepared land may be done. Drain out excess water from crop field. Seed rate for 1 ha: 100-110 Kernels (groundnut) and 50 kg (Soybean).
Blackgram & Rice bean	Sowing		- Sowing may be done. Field should be made weed free.
Storage			- Clean and store the seeds in RC-seed bins after proper drying. Check for germination of seeds or fungal growth.



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Horticulture C	rops		
			nels/ drains may be made to drain out water accumulated in the field and the
	be used to raise the	beds level.	
French Bean	Flowering to fruiting		- At this stage, surrounding area of the crop fields must be kept clean to avoid Hairy caterpillars. Proper drainage must be maintained.
Chilli/ tomato/	- Fruiting stage		- No cultural practice is advised as the field is still wet. For seeds mature fruits
brinjal			may be collected without disturbing the plant. Avoid direct contact of fruit with soil.
Cauliflower	Nursery		- Preparation for early cauliflower in the upland area may be done. It may also be raised, if movable rain protective structures are available with the farmers.
fruit plants like Orange, Lime, Lemon, Litchi, etc./ Tree bean	Planting		- In hills and upland area preparation of pits for planting fruits may be done
Animal Science	es		
Name of the animal	Growth stage	Disease/ infestation	Agro-meteorological advisories
Pig	Above 3 months of age	- Swine Fever	 - Vaccinate with <i>Swine Fever</i> vaccine as per prescribed dose but de-worm using Panacur tab @ 1.5mg/10kg body weight before vaccination. Don't use Korean strain vaccine. - Vaccinate all the susceptible animals against the FMD.
Q 4	A 11	- FMD - Fascioliosis	*
Goat	All age groups except three months or below	- Fascionosis	- Give Tolzan-F 15ml orally/ 300kg b. wt. It must be associated with vitamins like Livozyme @ 50ml twice daily.
Cattle / Buffalo/ Mithun	All age groups except three months or below	- FMD - Fascioliosis	 - Vaccinate all the susceptible animals against the FMD. - Give Tolzan-F 90ml orally/ 300kg b. wt. It must be associated with vitamins like Livozyme @ 50ml twice daily.
			- Apply Butox @3ml/lit of water while brushing the animals.
Poultry	All susceptible age groups	Coccidiosis	- Poultry must be provided <i>Coccidiostat/ Supercox</i> (@ <i>1g/lit of drinking water</i>) + plus 150gm of Glucose and vit K for 5 to 7 days.
		Pox	- Vaccinate against pox.
		Management	- To prevent protozoan, bacterial, fungal diseases, litter should be kept dry and turned regularly. Apply lime powder @ 2.5 kg per 100 sq. ft. area in litter material.
Fisheries	•	•	
Type of Farming	Stage	Management	Agro-metrological advisories
Carp culture	Brooders	Pond and water	Ensure good quality/ clean water free from unwanted plants and animals with a minimum depth of 1.5 m. Fish feed pellet or rice bran & oil cakes (in ratio 1:1) should be provided @ 3-5% body weight per day in 2-3 splits. Spray CIFAX on the surface of the pond water. Male and female brooders must be kept in separate tanks.
	Breeding	pond	• Fish hormones like ovaprim, ovatide or Wova-FH can be injected in both the brooders @ 0.5 - 0.7 ml/kg of fish.
	Hatcheries	water	• Hatching can be done in traditional hapas having outer & inner hapas or circular hatcheries. A mild current with fine shower is needed for circular hatcheries. Feed should not be given for 3 days.
	Nurseries	ponds	- Stock 20-30 lakhs spawns in one hectare water. Water depth should be more than 1.0 m. Feeding should be given@5-10% body weight/day.



ICAR Research Complex for N.E.H. Region Manipur Centre, Lamphelpat, Imphal - 795 004



"Integrated Agromet Advisory Services"

MANIPUR BULLETIN 21st May, 2013

Senapati

IAAS, ICAR-RC Manipur Centre in association with India Meteorological Department, Regional Meteorological Centre, Guwahati and Northern Hemisphere Analysis Centre, New Delhi, Ministry of Earth Science, Govt. of India reports the weather forecasts for the next five days, i.e., from 22nd to 26th May, 2013 as given below:

Significant past weather for the preceding bi-weekly of
Imphal - West (17 th to 20 th May, 2013)

During the past four days the sky was partly cloudy to cloudy but mainly clear during afternoon hours of 20^{th} May. **41.7** mm rainfall was recorded during past four days. Maximum temperature range observed was 25.7-31.3 °C, range of minimum temperature observed was 18.0-20.5 °C, mean relative humidity observed in morning and afternoon were 87.75 % and 71.0 % respectively. The average wind speed range was 2.3-5.8 km/hr.

Weather forecast for next five days of Senapati (22nd to 26th May, 2013)

It is likely to have light to moderate rains and thundery showers during next five days. The sky is likely to be cloudy with maximum temp. of 23.0 - 26.0 $^{\circ}\text{C}$ and minimum temp. of 17.0 – 20.0 $^{\circ}\text{C}$. The RH is likely to remain above 79 % during next five days. The average wind speed during next five days may reach upto max. value of 3 km/hr.

Main Weather Observation

Kalpana 1Cloud Imagery at 0530 hrs IST shows low/ medium clouds over parts of northeast

Weather Forecast for next 3 days (upto 0830 hours IST of 24th May, 2013)

Rain/thundershowers would occur at many places over Manipur

Weather warning during next 3 days

Thundersquall would occur at one or two places over Manipur during next 48 hrs

Weather Outlook for subsequent 4 days from 24th to 28th May, 2013

Name of the crop	Stage	Pest and disease infestation	Agro-meteorological advisories
Field Crops			•
Rice	(Pre-kharif) Tillering to panicle initiation		 Maintain water depth of 5-8 cm. At 45 days of transplanting (panicle initiation stage), apply 33 kg Urea.
	Kharif		Seed beds may be prepared in terraces and valley. 60 kg seeds may be used to sow in 700 m2 nursery area to transplant seedlings for one hectare. Soak seeds for 24 hrs then incubate for 36 hrs if the weather is warm but if temp. falls down then incubate it for 48hrs. Sprouted seeds may be sown in scientific plots of width 1.5m and length may vary as per field conditions.
Maize	Vegetative (Summer maize)		Weeding may be done.Maintain proper drainage system to drain out excess water.
	Cob formation to cob maturity (Rabi maize)		Harvest crops for cobs and for seeds harvest when the colour of silks turns black.
Soybean	sowing and early vegetative		- As a basal dose, apply NPK in the ratio (20:60:40) kg in 1 ha land. Sowing in prepared land may be done. Drain out excess water from crop field. Seed rate for 1 ha: 100-110 Kernels (groundnut) and 50 kg (Soybean).
Blackgram & Rice bean	Sowing		- Sowing may be done. Field should be made weed free.
Storage			- Clean and store the seeds in RC-seed bins after proper drying. Check for germination of seeds or fungal growth.



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Horticulture C	rops		
		lying area, ponds/chanr	nels/ drains may be made to drain out water accumulated in the field and the
	be used to raise the		tolly drame may be made to dram out water accumulated in the nord and the
French Bean	Flowering to fruiting		- At this stage, surrounding area of the crop fields must be kept clean to avoid Hairy caterpillars. Proper drainage must be maintained.
Chilli/ tomato/ brinjal	- Fruiting stage		- No cultural practice is advised as the field is still wet. For seeds mature fruits may be collected without disturbing the plant. Avoid direct contact of fruit with
fruit plants like Orange, Lime, Lemon, Litchi, etc./ Tree bean	Planting		- In hills and upland area preparation of pits for planting fruits may be done
Animal Science	es		
Name of the animal	Growth stage	Disease/ infestation	Agro-meteorological advisories
Pig	Above 3 months of age	- Swine Fever	 - Vaccinate with <i>Swine Fever</i> vaccine as per prescribed dose but de-worm using Panacur tab @ 1.5mg/10kg body weight before vaccination. Don't use Korean strain vaccine. - Vaccinate all the susceptible animals against the FMD.
Goat	All age groups except three months or below	- FMD - Fascioliosis	- Give Tolzan-F 15ml orally/ 300kg b. wt. It must be associated with vitamins like Livozyme @ 50ml twice daily.
Cattle / Buffalo/ Mithun	All age groups except three months or below	- FMD - Fascioliosis	 Vaccinate all the susceptible animals against the FMD. Give Tolzan-F 90ml orally/ 300kg b. wt. It must be associated with vitamins like Livozyme @ 50ml twice daily. Apply Butox @3ml/lit of water while brushing the animals.
Poultry	All susceptible age groups	Coccidiosis	- Poultry must be provided <i>Coccidiostat/Supercox</i> (@ 1g/lit of drinking water) + plus 150gm of Glucose and vit K for 5 to 7 days.
		Pox	- Vaccinate against pox.
		Management	- To prevent protozoan, bacterial, fungal diseases, litter should be kept dry and turned regularly. Apply lime powder @ 2.5 kg per 100 sq. ft. area in litter material.
Fisheries			•
Type of Farming	Stage	Management	Agro-metrological advisories
Carp culture	Brooders	Pond and water	Ensure good quality/ clean water free from unwanted plants and animals with a minimum depth of 1.5 m. Fish feed pellet or rice bran & oil cakes (in ratio 1:1) should be provided @ 3-5% body weight per day in 2-3 splits. Spray CIFAX on the surface of the pond water. Male and female brooders must be kept in separate tanks.
	Breeding	pond	Fish hormones like ovaprim, ovatide or Wova-FH can be injected in both the brooders @ 0.5 - 0.7 ml/kg of fish.
	Hatcheries	water	• Hatching can be done in traditional hapas having outer & inner hapas or circular hatcheries. A mild current with fine shower is needed for circular hatcheries. Feed should not be given for 3 days.
	Nurseries	ponds	- Stock 20-30 lakhs spawns in one hectare water. Water depth should be more than 1.0 m. Feeding should be given@5-10% body weight/day.



ICAR Research Complex for N.E.H. Region Manipur Centre, Lamphelpat, Imphal - 795 004



"Integrated Agromet Advisory Services"

MANIPUR BULLETIN 21st May, 2013

Tamenglong

IAAS, ICAR-RC Manipur Centre in association with India Meteorological Department, Regional Meteorological Centre, Guwahati and Northern Hemisphere Analysis Centre, New Delhi, Ministry of Earth Science, Govt. of India reports the weather forecasts for the next five days, i.e., from 22nd to 26th May, 2013 as given below:

Significant past weather for the preceding bi-weekly of	
Imphal - West (17 th to 20 th May, 2013)	

During the past four days the sky was partly cloudy to cloudy but mainly clear during afternoon hours of 20^{th} May. **41.7** mm rainfall was recorded during past four days. Maximum temperature range observed was 25.7-31.3 °C, range of minimum temperature observed was 18.0-20.5 °C, mean relative humidity observed in morning and afternoon were 87.75 % and 71.0 % respectively. The average wind speed range was 2.3-5.8 km/hr.

Weather forecast for next five days of Tamenglong (22nd to 26th May, 2013)

It is likely to have light to moderate rains and thundery showers during next five days. The sky is likely to be cloudy with maximum temp. of 25.0 - 30.0 °C and minimum temp. of 19.0-22.0 °C. The RH is likely to remain above 88 % during next five days. The average wind speed during next five days may reach upto max. value of 3 km/hr.

Main Weather Observation

Kalpana 1Cloud Imagery at 0530 hrs IST shows low/ medium clouds over parts of northeast

Weather Forecast for next 3 days (upto 0830 hours IST of 24th May, 2013)

Rain/thundershowers would occur at many places over Manipur

Weather warning during next 3 days

Thundersquall would occur at one or two places over Manipur during next 48 hrs

Weather Outlook for subsequent 4 days from 24th to 28th May, 2013

Name of the crop	Stage	Pest and disease infestation	Agro-meteorological advisories
Field Crops	<u>. </u>		•
Rice	(Pre-kharif) Tillering to panicle initiation		 Maintain water depth of 5-8 cm. At 45 days of transplanting (panicle initiation stage), apply 33 kg Urea.
	Kharif		Seed beds may be prepared in terraces and valley. 60 kg seeds may be used to sow in 700 m2 nursery area to transplant seedlings for one hectare. Soak seeds for 24 hrs then incubate for 36 hrs if the weather is warm but if temp. falls down then incubate it for 48hrs. Sprouted seeds may be sown in scientific plots of width 1.5m and length may vary as per field conditions.
Maize	Vegetative (Summer maize)		Weeding may be done.Maintain proper drainage system to drain out excess water.
	Cob formation to cob maturity (Rabi maize)		Harvest crops for cobs and for seeds harvest when the colour of silks turns black.
Groundnut & soybean	sowing and early vegetative		- As a basal dose, apply NPK in the ratio (20:60:40) kg in 1 ha land. Sowing in prepared land may be done. Drain out excess water from crop field. Seed rate for 1 ha: 100-110 Kernels (groundnut) and 50 kg (Soybean).
Blackgram & Rice bean	Sowing		- Sowing may be done. Field should be made weed free.
Storage			- Clean and store the seeds in RC-seed bins after proper drying. Check for germination of seeds or fungal growth.



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Horticulture C	rops		
			nels/ drains may be made to drain out water accumulated in the field and the
	be used to raise the	beds level.	
French Bean	Flowering to fruiting		- At this stage, surrounding area of the crop fields must be kept clean to avoid Hairy caterpillars. Proper drainage must be maintained.
Chilli/ tomato/	- Fruiting stage		- No cultural practice is advised as the field is still wet. For seeds mature fruits
brinjal			may be collected without disturbing the plant. Avoid direct contact of fruit with soil.
Cauliflower	Nursery		- Preparation for early cauliflower in the upland area may be done. It may also be raised, if movable rain protective structures are available with the farmers.
fruit plants like Orange, Lime, Lemon, Litchi, etc./ Tree bean	Planting		- In hills and upland area preparation of pits for planting fruits may be done
Animal Science	es		
Name of the animal	Growth stage	Disease/ infestation	Agro-meteorological advisories
Pig	Above 3 months of age	- Swine Fever	 - Vaccinate with <i>Swine Fever</i> vaccine as per prescribed dose but de-worm using Panacur tab @ 1.5mg/10kg body weight before vaccination. Don't use Korean strain vaccine. - Vaccinate all the susceptible animals against the FMD.
Q 4	A 11	- FMD - Fascioliosis	*
Goat	All age groups except three months or below	- Fascionosis	- Give Tolzan-F 15ml orally/ 300kg b. wt. It must be associated with vitamins like Livozyme @ 50ml twice daily.
Cattle / Buffalo/ Mithun	All age groups except three months or below	- FMD - Fascioliosis	 - Vaccinate all the susceptible animals against the FMD. - Give Tolzan-F 90ml orally/ 300kg b. wt. It must be associated with vitamins like Livozyme @ 50ml twice daily.
			- Apply Butox @3ml/lit of water while brushing the animals.
Poultry	All susceptible age groups	Coccidiosis	- Poultry must be provided <i>Coccidiostat/ Supercox</i> (@ <i>1g/lit of drinking water</i>) + plus 150gm of Glucose and vit K for 5 to 7 days.
		Pox	- Vaccinate against pox.
		Management	- To prevent protozoan, bacterial, fungal diseases, litter should be kept dry and turned regularly. Apply lime powder @ 2.5 kg per 100 sq. ft. area in litter material.
Fisheries	•	•	
Type of Farming	Stage	Management	Agro-metrological advisories
Carp culture	Brooders	Pond and water	Ensure good quality/ clean water free from unwanted plants and animals with a minimum depth of 1.5 m. Fish feed pellet or rice bran & oil cakes (in ratio 1:1) should be provided @ 3-5% body weight per day in 2-3 splits. Spray CIFAX on the surface of the pond water. Male and female brooders must be kept in separate tanks.
	Breeding	pond	• Fish hormones like ovaprim, ovatide or Wova-FH can be injected in both the brooders @ 0.5 - 0.7 ml/kg of fish.
	Hatcheries	water	• Hatching can be done in traditional hapas having outer & inner hapas or circular hatcheries. A mild current with fine shower is needed for circular hatcheries. Feed should not be given for 3 days.
	Nurseries	ponds	- Stock 20-30 lakhs spawns in one hectare water. Water depth should be more than 1.0 m. Feeding should be given@5-10% body weight/day.



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"Integrated Agromet Advisory Services"

MANIPUR BULLETIN 21st May, 2013

Ukhrul

IAAS, ICAR-RC Manipur Centre in association with India Meteorological Department, Regional Meteorological Centre, Guwahati and Northern Hemisphere Analysis Centre, New Delhi, Ministry of Earth Science, Govt. of India reports the weather forecasts for the next five days, i.e., from 22nd to 26th May, 2013 as given below:

Significant past weather for the preceding bi-weekly of
Imphal - West (17 th to 20 th May, 2013)

During the past four days the sky was partly cloudy to cloudy but mainly clear during afternoon hours of 20^{th} May. **41.7** mm rainfall was recorded during past four days. Maximum temperature range observed was 25.7-31.3 °C, range of minimum temperature observed was 18.0-20.5 °C, mean relative humidity observed in morning and afternoon were 87.75 % and 71.0 % respectively. The average wind speed range was 2.3-5.8 km/hr.

Weather forecast for next five days of Ukhrul (22nd to 26th May, 2013)

It is likely to have light to moderate rains and thundery showers during next five days. The sky is likely to be cloudy with maximum temp. of 23.0 - 26.0 $^{\circ}\text{C}$ and minimum temp. of 17.0 – 19.0 $^{\circ}\text{C}$. The RH is likely to remain above 88 % during next five days. The average wind speed during next five days may reach upto max. value of 3 km/hr.

Main Weather Observation

Kalpana 1Cloud Imagery at 0530 hrs IST shows low/ medium clouds over parts of northeast

Weather Forecast for next 3 days (upto 0830 hours IST of 24th May, 2013)

Rain/thundershowers would occur at many places over Manipur

Weather warning during next 3 days

Thundersquall would occur at one or two places over Manipur during next 48 hrs

Weather Outlook for subsequent 4 days from 24th to 28th May. 2013

Name of the crop	Stage	Pest and disease infestation	Agro-meteorological advisories
Field Crops			
Rice	(Pre-kharif) Tillering to panicle initiation		 Maintain water depth of 5-8 cm. At 45 days of transplanting (panicle initiation stage), apply 33 kg Urea.
	Kharif		Seed beds may be prepared in terraces and valley. 60 kg seeds may be used to sow in 700 m2 nursery area to transplant seedlings for one hectare. Soak seeds for 24 hrs then incubate for 36 hrs if the weather is warm but if temp. falls down then incubate it for 48hrs. Sprouted seeds may be sown in scientific plots of width 1.5m and length may vary as per field conditions.
Maize	Vegetative (Summer maize)		Weeding may be done.Maintain proper drainage system to drain out excess water.
	Cob formation to cob maturity (Rabi maize)		Harvest crops for cobs and for seeds harvest when the colour of silks turns black.
Soybean	sowing and early vegetative		- As a basal dose, apply NPK in the ratio (20:60:40) kg in 1 ha land. Sowing in prepared land may be done. Drain out excess water from crop field. Seed rate for 1 ha: 100-110 Kernels (groundnut) and 50 kg (Soybean).
Blackgram & Rice bean	Sowing		- Sowing may be done. Field should be made weed free.
Storage			- Clean and store the seeds in RC-seed bins after proper drying. Check for germination of seeds or fungal growth.



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Horticulture C	rops		
		lying area, ponds/chanr	nels/ drains may be made to drain out water accumulated in the field and the
	be used to raise the		tolly drame may be made to dram out water accumulated in the nord and the
French Bean	Flowering to fruiting		- At this stage, surrounding area of the crop fields must be kept clean to avoid Hairy caterpillars. Proper drainage must be maintained.
Chilli/ tomato/ brinjal	- Fruiting stage		- No cultural practice is advised as the field is still wet. For seeds mature fruits may be collected without disturbing the plant. Avoid direct contact of fruit with
fruit plants like Orange, Lime, Lemon, Litchi, etc./ Tree bean	Planting		- In hills and upland area preparation of pits for planting fruits may be done
Animal Science	es		
Name of the animal	Growth stage	Disease/ infestation	Agro-meteorological advisories
Pig	Above 3 months of age	- Swine Fever	 - Vaccinate with <i>Swine Fever</i> vaccine as per prescribed dose but de-worm using Panacur tab @ 1.5mg/10kg body weight before vaccination. Don't use Korean strain vaccine. - Vaccinate all the susceptible animals against the FMD.
Goat	All age groups except three months or below	- FMD - Fascioliosis	- Give Tolzan-F 15ml orally/ 300kg b. wt. It must be associated with vitamins like Livozyme @ 50ml twice daily.
Cattle / Buffalo/ Mithun	All age groups except three months or below	- FMD - Fascioliosis	 Vaccinate all the susceptible animals against the FMD. Give Tolzan-F 90ml orally/ 300kg b. wt. It must be associated with vitamins like Livozyme @ 50ml twice daily. Apply Butox @3ml/lit of water while brushing the animals.
Poultry	All susceptible age groups	Coccidiosis	- Poultry must be provided <i>Coccidiostat/Supercox</i> (@ 1g/lit of drinking water) + plus 150gm of Glucose and vit K for 5 to 7 days.
		Pox	- Vaccinate against pox.
		Management	- To prevent protozoan, bacterial, fungal diseases, litter should be kept dry and turned regularly. Apply lime powder @ 2.5 kg per 100 sq. ft. area in litter material.
Fisheries			•
Type of Farming	Stage	Management	Agro-metrological advisories
Carp culture	Brooders	Pond and water	Ensure good quality/ clean water free from unwanted plants and animals with a minimum depth of 1.5 m. Fish feed pellet or rice bran & oil cakes (in ratio 1:1) should be provided @ 3-5% body weight per day in 2-3 splits. Spray CIFAX on the surface of the pond water. Male and female brooders must be kept in separate tanks.
	Breeding	pond	Fish hormones like ovaprim, ovatide or Wova-FH can be injected in both the brooders @ 0.5 - 0.7 ml/kg of fish.
	Hatcheries	water	• Hatching can be done in traditional hapas having outer & inner hapas or circular hatcheries. A mild current with fine shower is needed for circular hatcheries. Feed should not be given for 3 days.
	Nurseries	ponds	- Stock 20-30 lakhs spawns in one hectare water. Water depth should be more than 1.0 m. Feeding should be given@5-10% body weight/day.



ICAR Research Complex for N.E.H. Region Manipur Centre, Lamphelpat, Imphal - 795 004



"Integrated Agromet Advisory Services"

MANIPUR BULLETIN 21st May, 2013

Thoubal

IAAS, ICAR-RC Manipur Centre in association with India Meteorological Department, Regional Meteorological Centre, Guwahati and Northern Hemisphere Analysis Centre, New Delhi, Ministry of Earth Science, Govt. of India reports the weather forecasts for the next five days, i.e., from 22nd to 26th May, 2013 as given below:

Significant past weather for the preceding bi-weekly of
Imphal - West (17 th to 20 th May, 2013)

During the past four days the sky was partly cloudy to cloudy but mainly clear during afternoon hours of 20^{th} May. **41.7** mm rainfall was recorded during past four days. Maximum temperature range observed was 25.7-31.3 °C, range of minimum temperature observed was 18.0-20.5 °C, mean relative humidity observed in morning and afternoon were 87.75 % and 71.0 % respectively. The average wind speed range was 2.3-5.8 km/hr.

Weather forecast for next five days of Thoubal (22nd to 26th May, 2013)

It is likely to have light to moderate rains and thundery showers during next five days. The sky is likely to be cloudy with maximum temp. of 24.0 - 29.0 $^{\circ}\text{C}$ and minimum temp. of 19.0 - 20.0 $^{\circ}\text{C}$. The maximum RH is likely to attain a max value of 97 % and minimum RH of 92 %. The average wind speed during next five days may reach upto max. value of 2 km/hr.

Main Weather Observation

Kalpana 1Cloud Imagery at 0530 hrs IST shows low/ medium clouds over parts of northeast

Weather Forecast for next 3 days (upto 0830 hours IST of 24th May, 2013)

Rain/thundershowers would occur at many places over Manipur

Weather warning during next 3 days

Thundersquall would occur at one or two places over Manipur during next 48 hrs

Weather Outlook for subsequent 4 days from 24th to 28th May. 2013

Name of the crop	Stage	Pest and disease infestation	Agro-meteorological advisories
Field Crops			
Rice	(Pre-kharif) Tillering to panicle initiation		 Maintain water depth of 5-8 cm. At 45 days of transplanting (panicle initiation stage), apply 33 kg Urea.
	Kharif		Seed beds may be prepared in terraces and valley. 60 kg seeds may be used to sow in 700 m2 nursery area to transplant seedlings for one hectare. Soak seeds for 24 hrs then incubate for 36 hrs if the weather is warm but if temp. falls down then incubate it for 48hrs. Sprouted seeds may be sown in scientific plots of width 1.5m and length may vary as per field conditions.
Maize	Vegetative (Summer maize) Cob formation to cob maturity		 Weeding may be done. Maintain proper drainage system to drain out excess water. Harvest crops for cobs and for seeds harvest when the colour of silks turns black.
	(Rabi maize)		
Groundnut & soybean	sowing and early vegetative		- As a basal dose, apply NPK in the ratio (20:60:40) kg in 1 ha land. Sowing in prepared land may be done. Drain out excess water from crop field. Seed rate for 1 ha: 100-110 Kernels (groundnut) and 50 kg (Soybean).
Blackgram & Rice bean	Sowing		- Sowing may be done. Field should be made weed free.
Storage			- Clean and store the seeds in RC-seed bins after proper drying. Check for germination of seeds or fungal growth.



ICAR Research Complex for N.E.H. Region Manipur Centre, Lamphelpat, Imphal - 795 004



Horticulture C	rops		
			nels/ drains may be made to drain out water accumulated in the field and the
	be used to raise the	beds level.	
French Bean	Flowering to fruiting		- At this stage, surrounding area of the crop fields must be kept clean to avoid Hairy caterpillars. Proper drainage must be maintained.
Chilli/ tomato/	- Fruiting stage		- No cultural practice is advised as the field is still wet. For seeds mature fruits
brinjal			may be collected without disturbing the plant. Avoid direct contact of fruit with soil.
Cauliflower	Nursery		- Preparation for early cauliflower in the upland area may be done. It may also be raised, if movable rain protective structures are available with the farmers.
fruit plants like Orange, Lime, Lemon, Litchi, etc./ Tree bean	Planting		- In hills and upland area preparation of pits for planting fruits may be done
Animal Science	es		
Name of the animal	Growth stage	Disease/ infestation	Agro-meteorological advisories
Pig	Above 3 months of age	- Swine Fever	 Vaccinate with <i>Swine Fever</i> vaccine as per prescribed dose but de-worm using Panacur tab @ 1.5mg/10kg body weight before vaccination. Don't use Korean strain vaccine. Vaccinate all the susceptible animals against the FMD.
Q 4	A11	- FMD - Fascioliosis	
Goat	All age groups except three months or below	- Fascionosis	- Give Tolzan-F 15ml orally/ 300kg b. wt. It must be associated with vitamins like Livozyme @ 50ml twice daily.
Cattle / Buffalo/ Mithun	All age groups except three months or below	- FMD - Fascioliosis	 Vaccinate all the susceptible animals against the FMD. Give Tolzan-F 90ml orally/ 300kg b. wt. It must be associated with vitamins like Livozyme @ 50ml twice daily.
			- Apply Butox @3ml/lit of water while brushing the animals.
Poultry	All susceptible age groups	Coccidiosis	- Poultry must be provided <i>Coccidiostat/ Supercox</i> (@ 1g/lit of drinking water) + plus 150gm of Glucose and vit K for 5 to 7 days.
		Pox	- Vaccinate against pox.
		Management	- To prevent protozoan, bacterial, fungal diseases, litter should be kept dry and turned regularly. Apply lime powder @ 2.5 kg per 100 sq. ft. area in litter material.
Fisheries		•	
Type of Farming	Stage	Management	Agro-metrological advisories
Carp culture	Brooders	Pond and water	Ensure good quality/ clean water free from unwanted plants and animals with a minimum depth of 1.5 m. Fish feed pellet or rice bran & oil cakes (in ratio 1:1) should be provided @ 3-5% body weight per day in 2-3 splits. Spray CIFAX on the surface of the pond water. Male and female brooders must be kept in separate tanks.
	Breeding	pond	• Fish hormones like ovaprim, ovatide or Wova-FH can be injected in both the brooders @ 0.5 - 0.7 ml/kg of fish.
	Hatcheries	water	• Hatching can be done in traditional hapas having outer & inner hapas or circular hatcheries. A mild current with fine shower is needed for circular hatcheries. Feed should not be given for 3 days.
	Nurseries	ponds	- Stock 20-30 lakhs spawns in one hectare water. Water depth should be more than 1.0 m. Feeding should be given@5-10% body weight/day.