

# **Package of Practices for Organic Production of Crops and Cropping Systems**

**ICAR-Network Project Organic Farming**



**ICAR-Indian Institute of Farming Systems Research  
Modipuram, Meerut - 250 110 (UP)  
Phone: 0121-2888548; E-mail: [directoriifsr@yahoo.com](mailto:directoriifsr@yahoo.com)  
[www.iifsr.res.in](http://www.iifsr.res.in)**

## MEGHALAYA

### Suggested cropping systems (based on testing under NPOF)

1. Rice-Carrot (Raised beds in lowland)
2. Rice-Tomato (Raised beds in lowland)
3. Maize + soybean-French bean (Upland)

### Details of crops in cropping systems

#### Rice

Particulars	<i>Kharif</i>
Crop	Rice
Fortnight of sowing/planting	July (transplanting)
Fortnight of harvesting	November
Varieties suitable for organic farming	Shahsarang 1, Lampnah

### Important features of suitable varieties

Parameters	Variety	
	Shahsarang 1	Lampnah
Duration (days)	140-145	140-150
Average yield under organic condition (kg/ha)	3600	3400
Source (s) of availability	ICAR-RC NEH, Umiam	ICAR-RC NEH, Umiam
Suitable regions/districts in the state	Ri-Bhoi district (800-1200 m above mean sea level)	Ri-Bhoi district (800-1200 m above mean sea level)
Specific resistance / tolerance to pest	Tolerant to stem borer	Tolerant to stem borer
Specific resistance / tolerance to disease	Tolerant to blast	Tolerant to blast
Specific tolerance to drought/waterlogging	Tolerant to Iron toxicity and blast	Tolerant to blast

## Nursery raising practices of rice

Area of nursery required for 1 ha	400 m <sup>2</sup>		
Nursery raising method	Raised bed method		
Bed size (length X breadth in m)	10 m Length x 1.25 m breadth x 15 cm Height		
Seed sowing rate/m <sup>2</sup>	50 g per m <sup>2</sup>		
Pre-sowing seed/soil treatment	Materials	Quantity/kg of seed or per m <sup>2</sup> area	Method of application
	<i>Trichoderma harzianum</i>	20 ml in 500 ml of water per acre	Seed treatment
	Neem cake	40 g per m <sup>2</sup>	Soil application
Source and optimum quantity of organic manures/other nutrient source/m <sup>2</sup> of nursery	Materials	Quantity/m <sup>2</sup> area	Method of application
	Farmyard manure (FYM)	1.5 kg/ m <sup>2</sup>	Soil mixing @ 2:1 ratio
Irrigation practices	If continuous dry spell occurs for 4-5 days, then irrigation is advocated with rose can		
Weed management	Two hand weeding at 8 and 15 Days after sowing (DAS)		
Organic plant protection practices	Name of pest/disease	Recommended organic material used for control	Quantity/m <sup>2</sup> area
	Leaf Hopper	Neem oil	3 ml/lt
Optimum age of nursery (days)	20 days		

**Field preparation:** The land is prepared thoroughly and well levelled with peripheral bunding. Puddling is done 2-3 times to make it weed free and water retentive. All weed biomass and crop residues of previous crop are incorporated with the soil during ploughing.

A nutrient dose of 80:60:40 kg/ha of N, P<sub>2</sub>O<sub>5</sub> & K<sub>2</sub>O is recommended. To supply these amount, about 15 t/ha of FYM is applied at around 15-20 days before transplanting. Also to obtained the required P nutrient dose, about 150 kg/ha of rock phosphate is applied in addition to the soil during transplanting. These nutrients are applied on N and P equivalent basis.





## Cultural practices of rice

Seed rate (kg/ha) (Not applicable for nursery crops)	25-30 kg/ha		
Pre-sowing/planting treatment of seed/seedlings	Material	Recommended rate (kg/ha or lit/ha)	Method of application
	<i>Azospirillum</i>	100 ml in 10 Litres of water	Root dip treatment (seedling roots are immersed in <i>Azospirillum</i> slurry for about 30 minutes before planting).
Spacing (row X plant) in cm	20 cm x 15 cm		
Number of seedlings/hill (in nursery crops only)	2 seedlings		
Basal application of organic manures including soil application of bio-fertilizers, bio-control agents etc	Source	Quantity/ha	
	FYM	15 t/ha	
	Neem cake	100 kg/ha	
Top dressing of organic manures	Source	Quantity	Days after sowing/ planting or stage of crop
	Vermiwash	100 ml per litre of water	40-45 DAT (Days after transplanting)
	Panchagavya	3 litres per 100 litres of water	Flowering stage
Irrigation practices	Number of irrigations	Most critical stages for irrigation	Depth of irrigation (cm)
	An optimal irrigation practice is followed by managing rainfall. Continuous submergence of 2-5 cm is maintained during transplanting to maturity. However, water is drained out during tillering stage to facilitate better tillering. Water is drained permanently during physiological maturity. If dry spell occurs continuously for 10-12 days, life saving irrigation is recommended.		
Major weeds	Scientific name	Common name	
	<i>Spilanthus Acmella</i>	Toothache plant	





Weed management	<i>Alternanthera philoxeroides</i>	Alligator weed	
	<i>Rotala indica</i>	Indian toothcup	
	<i>Echinicloa crusgalli</i>	Barnyard grass	
	<i>Cyperus rotundus</i>	Nutgrass	
	<i>Ageratum houstonianum</i>	Floss flower	
	<i>Polygonum hydropiper</i>	Water pepper	
	<i>Cuphea hyssopifolia</i>	False heather	
Weed management	Critical stage of weeding	Recommended practice for organic condition	
	30-45 DAT	Two hand weeding and one Cono-weeding is recommended to manage weeds. First hand weeding is done at 20 DAT and second at 55 DAT. One cono weeding with the use of cono weeder is carried out at 35 DAT	
Organic plant protection practices	Name of pest/disease	Organic material recommended for control	Quantity (kg or litres/ ha)
	Common insect-pests and diseases of rice	Pestoneem Derisom Neem cake (Soil application)	3 ml/lt 2 ml/lt 100 kg/ha
Optimum stage of harvesting	The crops should be harvested at appropriate time. Over maturing reduces market demand		

## Yield

Parameters	1 <sup>st</sup> year	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>	5 <sup>th</sup>	6 <sup>th</sup>	7 <sup>th</sup>	Mean
Economic yield (kg/ha)	3900	3660	3198	3165	3800	3760	4470	3707



## Carrot (*Summer*)

Important features of suitable variety of carrot (New Kuroda)

Parameters	New kuroda
Duration (days)	95-100
Average yield under organic condition (kg/ha)	13600
Source (s) of availability	ICAR-RC Umiam
Suitable regions/districts in the state	Ri-Bhoi, Mid altitude of Meghalaya (800-1200 m ASL)
Specific resistance / tolerance to pest	No major insect-pest found
Specific resistance / tolerance to disease	No major diseases found
Specific tolerance to drought/waterlogging	Susceptible to water logging condition

**Field preparation:** After the harvest of rice, the land is configured into temporary raised bed of 30 cm height, 3m width and 7 m length to facilitate drainage for the growing of carrot crop. The soil is prepared by one deep ploughing with spade followed by harrowing. At least 1/3<sup>rd</sup> rice residues is retained and incorporated into the soil during ploughing. Planking is done to make the soil clod free. As the seeds of carrot are very small, the field is to be prepared up to a fine tilth. After the sowing of seeds in line, a mixture of soil and FYM (2:1) is spread over the seeds for covering.

## Cultural practices of carrot

Seed rate (kg/ha) (Not applicable for nursery crops)	5-6 kg/ha		
Spacing (Row X plant) in cm	30 cm x 3-4 cm		
Basal application of organic manures including soil application of bio-fertilizers, bio-control agents etc	Source	Quantity/ha	
	Phosphate solubilizing bacteria (PSB)	1.5 kg/ha	
Top dressing of organic manures	Source	Quantity/ha	Days after sowing/ planting or stage of crop
	Vermiwash	50 l/ha	Vegetative and flowering stage
Irrigation practices for irrigation	Number of irrigations	Most critical stages	
	Depth of irrigation (cm)		



	In Meghalaya, after harvesting of rice, there is enough moisture in valley land due to seepage from surrounding hillocks, carrot grow normally under residual soil moisture. However, if required, life saving irrigation is given during dry spell.		
Major weeds	Scientific name	Common name	
	<i>Commelina benghalensis</i>	Day flower	
	<i>Galinsoga parviflora</i>	Gallant soldier	
	<i>Oxalis corniculata</i>	Sleeping beauty	
	<i>Chenopodium album</i>	Lamb's quarters	
	<i>Drymaria cordata</i>	Tropical chick weed	
Weed management	Critical stage of weeding	Recommended practice for organic condition	
	30-35 DAS	One hand weeding and hoeing along with earthing up at about 30-35 DAS is carried out to suppress weed growth. Thinning is also being done at the time of weeding.	
Organic plant protection practices	Name of pest/disease	Organic material recommended for control	Quantity (kg or litres/ ha)
	Carrot fly, Bacterial blight, Powdery mildew	Pestoneem	3 ml/lt
		Derisom	2ml/lt
Optimum stage of harvesting	The root attain marketable stage when their diameter of tuber is 2-4 cm at the upper end		

## Yield

Parameters	1 <sup>st</sup> year	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>	5 <sup>th</sup>	6 <sup>th</sup>	7 <sup>th</sup>	Mean
Economic yield (kg/ha)	7780	14060	11950	11860	11970	14100	12750	12067



## Tomato

Particulars	Summer
Crop	Tomato
Fortnight of sowing/planting	February
Fortnight of harvesting	May
Varieties suitable for organic farming	Rocky, Avinash-2

### Important features of suitable varieties

Parameters	Rocky	Avinash 2
Duration (days)	100-105	105-110
Average yield under organic condition (kg/ha)	20425	21309
Source (s) of availability	ICAR-RC Umiam	ICAR-RC Umiam
Suitable regions/districts in the state	Ri-Bhoi	Ri-Bhoi
Specific resistance /tolerance to pest	-	-
Specific resistance /tolerance to disease	Tolerant to <i>Fusarium wilt</i> , Grey leaf spot and <i>Verticillium wilt</i>	

### Nursery raising practices

Area of nursery required for 1 ha	200 m <sup>2</sup>		
Nursery raising method	Raised bed method		
Bed size (length X breadth in m)	10 m Length x 1 m breadth x 15 cm Height*Rows are made at 10 cm distance along the width of bed with the help of bamboo stick. Vermicompost is applied on prepared beds and seeds are sown in line followed by covering with vermicompost or sand. Nursery bed is covered with dry grass or paddy straw or polythene for 3-5 days to induce early germination of seeds. The covering is removed immediately as soon as sprouts come out.		
Seed sowing rate/m <sup>2</sup>	5 g/m <sup>2</sup>		
Source and optimum quantity of organic manures/other nutrient source/m <sup>2</sup> of nursery	Materials	Quantity/ m <sup>2</sup> area	Method of application
	Vermicompost	4 kg/ m <sup>2</sup>	Mixing with soil





Irrigation practices	After sowing of seeds, the nursery beds are irrigated with water and thereafter, light irrigation with rose can is given everyday morning and evening.		
Weed management	Two hand weeding is needed to suppress weed growth		
Organic plant protection practices	Name of pest/disease	Recommended organic material used for control	Quantity/ m <sup>2</sup> area
	No pesticides applied in nursery		
Optimum age of nursery (days)	25-30 days		

**Field preparation:** The land is configured into temporary raised bed of 30 cm height, 2m width and 8 m length after the harvest of rice, to facilitate the growing of Tomato crop. A well pulverized soil is obtained by ploughing the raised beds 2 times followed by harrowing. 30 % of rice stubbles is retained and incorporated into the soil during ploughing.

Since the soil of this region is acidic in nature, lime application is recommended @ 500 kg/ha during the final bed preparation. FYM @ 20 t/ha (on N equivalent basis) is applied in pits of 50cm x 50cm spacing at the time of transplanting. To supplement the requirement of Phosphorus, Rock phosphate @ 200 kg/ha (on P equivalent basis) is applied in the pits during transplanting time. Neem cake @ 150 kg/ha is also applied in the pits before transplanting to check soil borne diseases

### Cultural practices of tomato

Seed rate (kg/ha)	400 g/ha		
Pre-sowing/planting treatment of seed/seedlings	Material	Recommended rate (kg/ha or lit/ha)	Method of application
	<i>Trichoderma harzianum</i>	100 ml in 10 Litres of water	Root dip treatment (seedling roots are immersed in <i>Trichoderma</i> slurry for about 30 minutes before planting).
Spacing (Row X plant) in cm	50 cm x 50 cm		
Number of seedlings/hill (in nursery crops only)	1 seedling per hill		





Basal application of organic manures including soil application of bio-fertilizers, bio-control agents etc	Source	Quantity/ha	
	FYM	20 t/ha	
	Rock phosphate	200 kg/ha	
	Neem cake	150 kg/ha	
Top dressing of organic manures	Source	Quantity/ha	Days after sowing/ planting or stage of crop
	Panchagavya	3 litres per 100 litres of water	25-30 DAT
Irrigation practices	Number of irrigations	Most critical stages for irrigation	
	During dry year, 2-3 life irrigation is required.	Vegetative, Flowering and Fruit formation stage.	
Major weeds	Scientific name	Common name	
	<i>Drymaria cordata</i>	Tropical chick weed	
	<i>Galinsoga parviflora</i>	Gallant soldier	
	<i>Oxalis corniculata</i>	Sleeping beauty	
	<i>Commelina benghalensis</i>	Day flower	
Weed management	Critical stage of weeding	Recommended practice for organic condition	
	Vegetative stage	Hand hoeing	
Organic plant protection practices	Name of pest/ disease	Organic material recommended for control	Quantity (kg or litres/ ha)
	Leaf miner, Fruit borer, White fly	Lantana leaf extract (10%)	100 ml in 1 litre of water
		Pestoneem	2.5 ml/lt
	Nematodes and Late blight	Derisom	2 ml/lt
Optimum stage of harvesting	Pink to light red colour fruits		



## Yield

Parameters	1 <sup>st</sup> *year	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>	5 <sup>th</sup>	6 <sup>th</sup>	7 <sup>th</sup>	Mean
Economic yield (kg/ha)	29800	25000	24500	26200	19300	21300	20600	23814

## Glimpses



Mixing of FYM and soil for nursery bed preparation (2:1)



Preparing tomato pits for transplanting



Applying rock phosphate in tomato pit



Tomato grown under organic in raised beds



Fruiting of tomato



Harvested tomato from organic plot



## Maize+soyabean (2:2 ratio)

Particulars	Summer
Crop	Maize+soyabean
Fortnight of sowing /planting	April-May
Fortnight of harvesting	July-August
Varieties suitable for organic farming	Maize-DA-61-A, RCM-1-3, Soyabean- JS-80-21

### Important features of suitable varieties

Parameters	Maize Varieties		Soyabean
	DA-61-A	RCM-1-1	JS-80-21
Duration (days)	110-115	110-120	145-150
Average yield under organic condition (kg/ha)	4200-4500	4000-4300	4800-5100
Source (s) of availability	ICAR-RC NEH, Umiam	ICAR-RC NEH, Umiam	ICAR-RC NEH, Umiam
Suitable regions/districts in the state	Ri-Bhoi district, Dimapur (Nagaland), Garo Hills district	Ri-Bhoi district, Dimapur (Nagaland), Garo Hills district	Ri-Bhoi district, Dimapur (Nagaland), Garo Hills district
Specific resistance/tolerance to pest	Tolerant to Stem borer		

**Field preparation:** Land is ploughed 2 times at a depth of 20-25 cm followed by 2 harrowing to obtain fine tilth. A properly levelled and uniformly graded field is required for good water management. Good drainage should be provided in maize field, because stagnation of water in the field is harmful to the crop. Lime @ 500kg/ha is mixed with the soil at final land preparation to improve soil health. It is to be noted that liming is carried out only once in 3 years.

Maize is intercropped with soyabean at 2:2 ratio (soyabean-maize-maize-soyabean-soyabean-maize i.e. 30-50-50-30-30-50 cm). To obtain the mentioned ratio, two lines of maize are grown at a distance of 50 cm apart alternated by two lines of soyabean at a distance of 30 cm apart. The Farmyard manure (FYM) @ 15 t/ha (on N equivalent basis), Rock phosphate @ of 150 kg/ha (on P<sub>2</sub>O<sub>5</sub> equivalent basis) and neem cake @ 100 kg/ha are applied in the opened furrows and mixed well with the soil at the time of sowing. Seeds are placed





in these furrow lines, at a distance of 25 cm for maize and 10 cm for soyabean and covered with soil.

When the soyabean crop reaches 40-45 days, leaving about 30 cm standing stalks upper portion of the soyabean plant is detopped and placed besides the maize plant for better plant nutrition. The soyabean biomass is then used for green manuring. Earthing up of maize is done after the detopping of soyabean for proper crop stand of maize and also for better incorporation of soyabean biomass into the soil.

### Cultural practices of Maize

Seed rate (kg/ha) (Not applicable for nursery crops)	20-25 kg/ha		
Pre-sowing/planting treatment of seed/seedlings	Material	Recommended rate (kg/ha or lit/ha)	Method of application
	<i>Trichoderma viride</i>	5 g/kg of seed	Seed treatment
Spacing (row X plant) in cm	50 cm x 25 cm		
Basal application of organic manures including soil application of bio-fertilizers, bio-control agents etc	Source	Quantity/ha	
	FYM	15 t/ha	
	Neem cake	150 kg/ha	
Top dressing of organic manures	Rock phosphate	200 kg/ha	
	Source	Quantity	Days after sowing/planting or stage of crop
Irrigation practices	Vermiwash	100 ml per litre of water	30 DAS
	Panchagavya	3 litres per 100 litres of water	Tasseling (60-65 DAS)
Irrigation practices	Number of irrigations		Most critical stages for irrigation
	Maize is grown under rainfed condition in Meghalaya. However, if prolong dry spell for 15-20 days occurs, life saving irrigation may be given at critical stages of the crop.		Knee high stage and Tasseling stage



Major weeds	Scientific name	Common name	
	<i>Alternanthera philoxeroides</i>	Alligator weed	
	<i>Drymaria cordata</i>	Tropical chick weed	
	<i>Commelina benghalensis</i>	Day flower	
	<i>Ageratum conyzoides</i>	Goat weed	
Weed management	Critical stage of weeding	Recommended practice for organic condition	
	Knee high stage and Tasseling stage	Two hand weeding is recommended to manage weeds. First hand weeding is done at 25 DAS and second at 50 DAS.	
Organic plant protection practices	Name of pest/disease	Organic material recommended for control	Quantity (kg or litres/ ha)
	Stem borer	Pestoneem	3 ml/lt
	Cob borer	Derisom	2.5 ml/lt
	Cut worms	Lantana leaf extract	10 %
	Leaf blight		
	Brown spot		
Optimum stage of harvesting	The cob is harvested when the plant has become straw coloured (light brown) and the grain hard, some of the cobs will droop downwards.		

### Yield

Parameters	1 <sup>st</sup> year	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>	5 <sup>th</sup>	6 <sup>th</sup>	7 <sup>th</sup>	Mean
Economic yield (kg/ha)	4500	3900	3700	5800	5100	5600	5700	4900

### Glimpses



Maize+soyabean (2:2 ratio)



Maize at physiological maturity stage



Maize cob ready for harvest stage



## French bean (*Summer*)

### Important features of suitable varieties of French bean

Parameters	Naga local	RCM FB-18
Duration (days)	90-95	85-90
Average yield under organic condition (kg/ha)	18000	16800
Source (s) of availability	ICAR-RC Umiam	ICAR-RC Umiam
Suitable regions/districts in the state	Ri-Bhoi, Mid altitude of Meghalaya (800-1200 m ASL)	Ri-Bhoi, Mid altitude of Meghalaya (800-1200 m ASL)

**Field preparation:** After the harvest of maize, maize stubbles are cut at 1 m height for recycling of residues. Two furrow lines are made in between each row of maize for sowing of French bean seed. FYM, Rock phosphate, Neem cake @ 15 t/ha, 150 kg/ha and 100 kg/ha (on N and P<sub>2</sub>O<sub>5</sub> equivalent basis) respectively are applied in the furrow lines and mixed with soil. Seeds are placed at a distance of 15 cm plant to plant and the seeds are covered with soil immediately after sowing.

### Cultural practices of French bean

Seed rate (kg/ha)	25-30 kg/ha		
Pre-sowing/planting treatment of seed/seedlings	Material	Recommended rate (kg/ha or lit/ha)	Method of application
	<i>Trichoderma viride</i>	5 g/kg of seed	Seed treatment
Spacing (Row X plant) in cm	25 cm x 15 cm		
Basal application of organic manures including soil application of bio-fertilizers, bio-control agents etc	Source	Quantity/ha	
	FYM	15 t/ha	
	Neem cake	150 kg/ha	
	Rock phosphate	200 kg/ha	
Top dressing of organic manures	Source	Quantity/ha	Days after sowing / planting or stage of crop
	Panchagavya	25 litre/ha	20-25 DAS
Irrigation practices	Number of irrigations	Most critical stages for irrigation	Depth of irrigation (cm)



	The crop is grown under rainfed condition. However, one life saving irrigation is given during dry spell		
Major weeds	Scientific name	Common name	
	<i>Drymaria cordata</i>	Tropical chick weed	
	<i>Commelina benghalensis</i>	Day flower	
	<i>Galinsoga parviflora</i>	Gallant soldier	
	<i>Oxalis corniculata</i>	Sleeping beauty	
	<i>Chenopodium album</i>	Lamb's quarters	
Weed management	Critical stage of weeding	Recommended practice for organic condition	
	30-35 DAS	One hand weeding and hoeing along with earthing up at about 30-35 DAS is carried out to suppress weed growth	
Organic plant protection practices	Name of pest/disease	Organic material recommended for control	Quantity (kg or litres/ ha)
	Anthracnose	Pestoneem	2.5 ml/lt
	Rhizoctonia blight	Derisom	2ml/lt
	Blister beetle Mites		
Optimum stage of harvesting	Tender pods become ready for harvest from 55-60 DAS		

### Yield

Parameters	1 <sup>st</sup> year	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>	5 <sup>th</sup>	6 <sup>th</sup>	7 <sup>th</sup>	Mean
Economic yield (kg/ha)	13400	12900	22920	18530	22400	18000	19560	18244

### Glimpses



French bean (Naga local)



French bean (RCM FB-18)



French bean pod ready for harvest





## Details of Specific Practices/products used/recommended

Name of the input	Source and Preparation	Time, rate and purpose of application
Panchagavya	<p>It is a cow excreta based indigenous nutrient solution. Panchagavya consists of nine products viz. cow dung, cow urine, milk, curd, jaggery, ghee, banana, Tender coconut and water. When suitably mixed and used, these have miraculous effects. The preparation steps of panchagavya is as follows;</p> <ol style="list-style-type: none"> <li>1. 7 kg. cow dung and 1 kg. cow ghee is mixed thoroughly both in morning and evening hours and is kept for 3 days.</li> <li>2. After 3 days, 10 lt. cow urine and 10 lt. water is added, mixed and kept for 15 days with regular mixing both in morning and evening hours.</li> <li>3. After 15 days the following ingredients are added and mixed <ul style="list-style-type: none"> <li>• Cow milk - 3 liters</li> <li>• Cow curd - 2 liters</li> <li>• Tender coconut water - 3 liters</li> <li>• Jaggery - 3 kg</li> <li>• Well ripened banana – 12 nos.</li> </ul>                     Panchagavya is ready after 30 days.                 </li> </ol>	<p>3% solution was found to be most effective compared to the higher and lower concentrations investigated. 3 litres of Panchagavya to every 100 litres of water is ideal for all crops.</p>
Lantana leaf extract 10%	<p>Leaves of <i>Lantana camara</i> were collected from the nearby area of the farm and 10% aqueous leaf extract is prepared firstly by grinding the leaves and then soaking 100g of grinded leaves in 200 ml. distilled water for 24 hours at a room temperature of 30°C. The aqueous extract was obtained by filtering the mixture (leaf and water) through a Whatman No .42 filter paper and diluted with distilled water to prepare 10% concentration.</p>	<p>The extract is diluted with water @ 10% before spraying. This foliar spray act as insect-pest repellent. It can be sprayed 3-4 times during the crop duration according to pest infestation.</p>



Derisom	It is a bio-pesticide based on botanical extract of <i>Derris indica</i> .	It is applied as foliar spray @ 0.2% or 2 ml/lit. of water. It can be sprayed 2-3 times during the crop duration according to pest infestation. Derisom has Karanjin as active principle and acts as antifeedant and also acts on central nervous system of the Mites and Insect pests. Derisom works as Acaricide (Miticide) and Insecticide.
Pestoneem	Neem biopesticide is made from cold pressed neem kernels and its active azadirachtin 1500ppm is used as a general insecticide, fungicide and for coating urea for slow release	It is a bio-based pest controller containing 0.5% Azadirachtin and other vital bio-energizers. Application of pestoneem increase resistance to infestation of pest and disease.

### Glimpses



Collection of FYM from pit



Application of rock phosphate before sowing of rice



Vermiwash drum

## Glimpses



Opening furrow lines



Applying rock phosphate in open furrow



Placing of seed in furrow lines



FYM



Vermicompost



Placing of FYM in furrow lines

### Few suitable organic pesticides used in all three cropping system



Vermiwash



Derisom



*Tricoderma harzanium*



Pestoneem