

Package of Practices for Organic Production of Crops and Cropping Systems

ICAR-Network Project Organic Farming



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MADHYA PRADESH

Suggested cropping systems (based on testing under NPOF)

1. Soybean-Wheat
2. Soybean-Mustard
3. Soybean-Chickpea
4. Soybean-Isabgol/Linseed

Details of crops in cropping system

Soybean (*Kharif*)

Particulars	<i>Kharif</i>
Crop	Soybean
Fortnight of sowing/planting	July fortnight
Fortnight of harvesting	October
Varieties suitable for organic farming	JS-335

Important features of suitable varieties

Parameters	Var. JS-335
Duration (days)	95-100
Average yield under organic condition (kg/ha)	1100
Source (s) of availability	M.P. State govt.
Suitable regions/districts in the state	Central Zone (M.P.)
Specific resistance / tolerance to pest	Tolerant to stem fly
Specific resistance / tolerance to disease	Resistant to bacterial blight and tolerant to green mosaic
Specific tolerance to drought/waterlogging	Susceptible to water logging

Field preparation: Two ploughings are necessary before sowing. If necessary, broad bed furrow can be made wherever water logging is a problem.

Cultural practices

Seed rate (kg/ha) (Not applicable for nursery crops)	80		
Pre-sowing/planting treatment of seed/seedlings	Rhizobium culture	5g/kg seed	Seed treatment
	Phosphate Solublizing Bacteria (PSB)	5g/kg seed	Seed treatment
	<i>Trichoderma viride</i>	5 g/kg seed	Seed treatment
Spacing (Row × plant) in cm	45 × 5 cm		
Number of seedlings/hill (in nursery crops only)	NA		
Basal application of organic manures including soil application of bio-fertilizers, bio-control agents etc	Source	Quantity/ha	
	Cow dung manure (0.95% Nitrogen)	5 t/ha	
Irrigation practices	Number of	Most critical stages for irrigation	Depth of irrigation (cm)
	Rainfed crop		
Major weeds (give local, English and scientific name)	Doodhi Asthma herb (<i>Euphorbia hirta</i>), Motha Purple nutsedge (<i>Cyperus rotundus</i>),		
Weed management	Critical stage of weeding	Recommended practice for organic condition	
	20-30 days after sowing	Hand weeding	
Organic plant protection practices	Name of pest/disease	Organic material recommended for control	Quantity (kg or litres/ ha)
	Stem Girdle beetle	Neem oil (10000 ppm) 1% Azadirachtin	1 litre/ ha along with soap solution
	Tobacco caterpillar	Neem oil (10000 ppm) 1% Azadirachtin	1 litre/ ha along with soap solution
Optimum stage of harvesting	Physiological maturity stage of soybean		



Yield

Parameters	1 st *year	2 nd	3 rd	4 th	5 th	6 th	7 th	Mean
Economic yield (kg/ha)	714	1399	918	1144	2009	2377	1103	1380

Glimpses



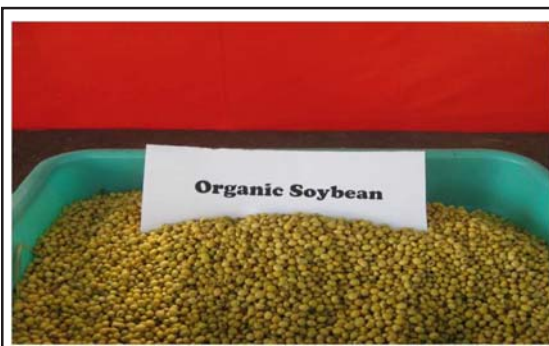
Cow dung manure



Vermicompost



A view of soybean crop in the organic farming experiment



Organic soybean

Wheat (*Rabi*)

Important features of suitable varieties

Parameters	Malwashakti
Duration (days)	135-140
Average yield under organic condition (kg/ha)	3570
Source (s) of availability	M.P. state Govt.
Suitable regions/districts in the state	Malwa region of M.P.
Specific resistance / tolerance to pest	NA
Specific resistance / tolerance to disease	Resistant to rust
Specific tolerance to drought/waterlogging	NA

Cultural practices

Seed rate (kg/ha) (Not applicable for nursery crops)	80-100 kg/ha		
Spacing (Row X plant) in cm	22.5 x 5 cm		
Basal application of organic manures including soil application of bio-fertilizers, bio-control agents etc	Source	Quantity/ha	
	Cow dung manure (0.95% Nitrogen)	4.5 t/ha	
	Vermicompost (1.41% Nitrogen)	3.5 t/ha	
	Poultry Manure (2.36% Nitrogen)	1.5 t/ha	
Irrigation practices	Number of irrigations	Most critical stages for irrigation	Depth of irrigation (cm)
	2-3	Crown root initiation (21 DAS)	
Major weeds	Senji yellow sweet clover (<i>Melilotus indica</i>), Doodhi Asthma herb (<i>Euphorbia hirta</i>), Motha Purple nutsedge (<i>Cyperus rotundus</i>), Bathua Common lambsquarter (<i>Chenopodium album</i>)		
Weed management	Critical stage of weeding	Recommended practice for organic condition	
	30-40 days after sowing	Hand weeding	
Optimum stage of harvesting (in case of vegetables and green cob)	Physiological maturity stage		



Yield

Parameters	1 st *year	2 nd	3 rd	4 th	5 th	6 th	7 th	Mean
Economic yield (kg/ha)	4160	4094	4110	4915	4406	3604	3136	4061

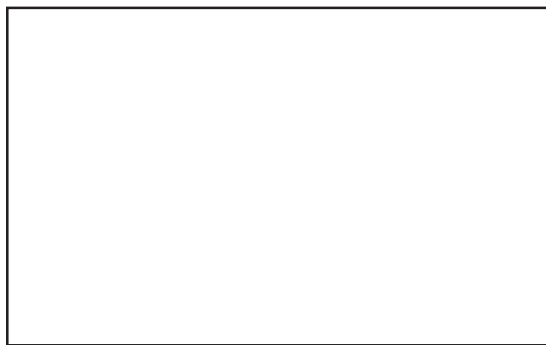
Glimpses



A view of wheat crop in the organic farming



Organic wheat



Mustard (*Rabi*)

Particulars	<i>Rabi</i>
Crop	Mustard
Fortnight of sowing/planting	2 nd fortnight of October
Fortnight of harvesting	1 st fortnight of March
Varieties suitable for organic farming	Pusa Bold
Crop (<i>kharif</i>): Soybean	

Cultural practices

Seed rate (kg/ha) (Not applicable for nursery crops)	5-6 kg/ha		
Spacing (Row X plant) in cm	45 x 10 cm		
Basal application of organic manures including soil application of bio-fertilizers, bio-control agents etc	Source	Quantity/ha	
	Cow dung manure (0.95% Nitrogen)	1.5 t/ha	
	Vermicompost (1.41% Nitrogen)	1.7 t/ha	
	Poultry Manure (2.36% Nitrogen)	1 t/ha	
Irrigation practices	Number of irrigations	Most critical stages for irrigation	Depth of irrigation (cm)
	2	Flowering stage	5-6 cm
Major weeds	Nut sedge (<i>Cyperus rotundus</i>), Bathua Common lambsquarter (<i>Chenopodium album</i>) Doodhi Asthma herb (<i>Euphorbia hirta</i>), Motha Purple nutsedge		
Weed management	Critical stage of weeding	Recommended practice for organic condition	
	15-30 days after sowing	Hand weeding	
Organic plant protection practices	Name of pest/disease	Organic material recommended for control	Quantity (kg or litres/ ha)
	Mustard aphid (<i>Lipaphis erysimi</i>)	Neem oil (10000 ppm) 1% Azadirachtin	1 litre/ ha with soap solution



Yield

Parameters	1 st *year	2 nd	3 rd	4 th	5 th	6 th	7 th	Mean
Economic yield (kg/ha)	1470	1421	1898	1948	2106	1142	1948	1705

Field preparation: Write here about the number of ploughings/harrowing /planking etc in running text and in sequence, Please specifically mention the practices of puddling, making ridges and furrows, raised beds if applicable along with distance also. Also mention about incorporation of green/green leaf manure

Glimpses



A view of mustard crop in the organic farming experiment



Organic mustard



Chickpea (*Rabi*)

Particulars	<i>Rabi</i>
Crop	Chickpea
Fortnight of sowing/planting	2 nd fortnight of October
Fortnight of harvesting	March
Varieties suitable for organic farming	JG-130

Important features of suitable varieties

Parameters	JG-130
Duration (days)	100-120
Average yield under organic condition (kg/ha)	1880
Source (s) of availability	M.P. state Govt.
Suitable regions/districts in the state	Malwa region of M.P.
Specific resistance / tolerance to disease	Resistant to fusarium wilt, moderately resistant to dry root rot
Specific tolerance to drought/waterlogging	Tolerant to helicoverpa

Field preparation: Two ploughings are necessary before sowing of the crops

Cultural practices

Seed rate (kg/ha) (Not applicable for nursery crops)	75-80 kg/ha		
Pre-sowing/planting treatment of seed/seedlings	Material	Recommended rate (kg/ha or lit/ha)	Method of application
	Rhizobium culture	5g/kg seed	Seed treatment
	Phosphate Solublizing Bacteria (PSB)	5g/kg seed	Seed treatment
	Trichoderma viride	2g/kg seed	Seed treatment
Spacing (Row X plant) in cm	30 x 10 cm		
Basal application of organic manures including soil application of bio-fertilizers, bio-control agents etc	Source	Quantity/ha	
	Cow dung manure (0.95% Nitrogen)	1.7 t/ha	



	Vermicompost (1.41% Nitrogen)	1.3 t/ha	
	Poultry Manre (2.36% Nitrogen)	0.5 t/ha	
Irrigation practices	Number of irrigations	Most critical stages for irrigation	Depth of irrigation (cm)
	2	Flowering stage	
Major weeds	Bathua Common lambsquarter (<i>Chenopodium album</i>), Doodhi Asthma herb (<i>Euphorbia hirta</i>), Motha Purple nutsedge (<i>Cyperus rotundus</i>), Doob grass Bermuda grass (<i>Cynodon dactylon</i>)		
Weed management	Critical stage of weeding	Recommended practice for organic condition	
	30 days after sowing	Hand weeding	

Yield

Parameters	1 st year	2 nd	3 rd	4 th	5 th	6 th	7 th	Mean
Economic yield (kg/ha)	1736	1480	1720	1890	3348	1821	2018	2002

Glimpses



A view of chickpea crop in the organic farming experiment



Organic chickpea



Linseed (*Rabi*)

Particulars	<i>Rabi</i>
Crop	Linseed
Fortnight of sowing/planting	1 st fortnight of October
Fortnight of harvesting	March
Varieties suitable for organic farming	JL-9

Important features of suitable varieties

Parameters	JL-9
Duration (days)	115-120
Average yield under organic condition (kg/ha)	1300
Source (s) of availability	M.P. state Govt.
Suitable regions/districts in the state	Sagar, Damoh Tikamgerh district of M.P.
Specific resistance / tolerance to disease	Resistant to powdery mildew

Field preparation: Two ploughings are necessary before sowing of the crops

Cultural practices

Seed rate (kg/ha) (Not applicable for nursery crops)	25-30 kg/ha		
Spacing (Row × plant) in cm	30 x 5 cm		
Basal application of organic manures including soil application of bio-fertilizers, bio-control agents	Source	Quantity/ha	
	Cow dung manure (0.95% Nitrogen)	3.4 t/ha	
	Vermicompost (1.41% Nitrogen)	1.7 t/ha	
	Poultry Manre (2.36% Nitrogen)	1 t/ha	
Irrigation practices	Number of irrigations	Most critical stages for irrigation	Depth of irrigation (cm)
	2	30 day after sowing	



Major weeds	Bathua Common lambsquarter (<i>Chenopodium album</i>), Doodhi Asthma herb (<i>Euphorbia hirta</i>), Doob grass Bermuda grass (<i>Cynodon dactylon</i>)	
Weed management	Critical stage of weeding 20-30 days after sowing	Recommended practice for organic condition Hand weeding

Yield

Parameters	1 st year	2 nd	3 rd	4 th	Mean
Economic yield (kg/ha)	1823	1080	1228	1392	1381

Glimpses



A view of linseed crop in the organic farming experiment



Organic Linseed



Isbgol (*Rabi*)

Particulars	<i>Rabi</i>
Crop	Isbgol
Fortnight of sowing/planting	1 st week of December
Fortnight of harvesting	March
Varieties suitable for organic farming	GI-2

Important features of suitable varieties

Parameters	GI-2
Duration (days)	115-120
Average yield under organic condition (kg/ha)	1200
Suitable regions/districts in the state	Neemuch Mandasour and ratlam district of M.P.
Specific resistance / tolerance to disease	Resistant to fusarium wilt, moderately resistant to dry root rot
Specific tolerance to drought/waterlogging	Tolerant to helicoverpa

Field preparation: Two ploughings are necessary before sowing of the crops

Cultural practices

Seed rate (kg/ha)	4-5 kg/ha	
Spacing (Row X plant) in cm	30 x 5 cm	
Basal application of organic manures including soil application of bio-fertilizers, bio-control agents etc	Source	Quantity/ha
	Cow dung manure (0.95% Nitrogen)	1.2 t/ha
	Vermicompost (1.41% Nitrogen)	0.6 t/ha
	Poultry Manure (2.36% Nitrogen)	0.3 t/ha
Irrigation practices	Number of irrigations	Most critical stages for irrigation
	3-4	Immediate light irrigation after sowing



Major weeds	Bathua Common lambsquarter (<i>Chenopodium album</i>), Doodhi Asthma herb (<i>Euphorbia hirta</i>), Motha Purple nutsedge(<i>Cyperus rotundus</i>),Doob grass Bermuda grass (<i>Cynodon dactylon</i>)		
Weed management	Critical stage of weeding	Recommended practice for organic condition	
	20-25 days after sowing	Hand weeding	
Organic plant protection practices	Name of pest/ disease	Organic material recommended for control	Quantity (kg or litres/ ha)
	White Grub	Neem oil (10000 ppm) 1% Azadirachtin	1 litre/ ha with soap solution

Yield

Parameters	1 st year	2 nd	3 rd	4 th	Mean
Economic yield (kg/ha)	1180	1126	1226	1249	1195

Glimpses



A view of isbhol crop in the organic farming experiment

Details of Specific Practices/products used/recommended

(Please give details of panchagavya, cow urine, BD preparation and any other ITK products including its method of preparation etc)